

Dental Digest

September 1956

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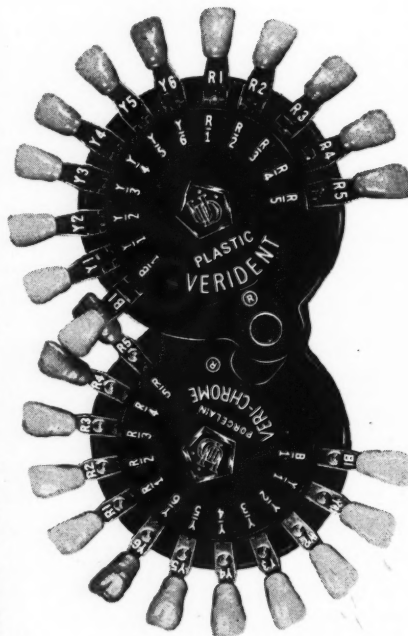
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SEPTEMBER 1956**About Our****CONTRIBUTORS**

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Techniques of RUBBER BASE IMPRESSIONS

Part One

ROBERT G. PINKERTON, D.D.S., Chicago

DIGEST

The use of rubber base material is increasing rapidly. The material has steadily improved in quality and now enjoys a wide range of application in all types of impression techniques resulting in accurate dies and models. Because of its comparatively recent introduction to the dental profession, however, little has been written concerning its use. Skinner and Cooper¹ have published information on the scientific research involving the chemical and physical aspects of the material. This is the first of two articles describing the technique used in handling rubber base impression materials. This article will deal with individual tooth impressions and crown and bridge construction.

Specific Factors in Application

Important factors to be remembered in the use of rubber base materials are the following:

(1) Follow the manufacturer's instructions. Extensive research is being conducted and the manufacturers are publishing their results.

(2) Proper mixing time must be observed. Warmth and humidity accelerate curing time, cold retards the curing time. A large mixing slab may be made using a sheet of highly polished stainless steel, 6 inches by 8 inches attached to a piece of plastic

the same size and about one quarter inch thick. After use the remaining rubber will readily peel off. Any rubber remaining on slab or spatula may be removed with chloroform. Sheets of paper mixing pads are apt to tear or pull away when mixing larger amounts.

(3) Correct amounts of base and accelerator should be used.

(4) Thorough mixing with no streaking of finished mix is required.

(5) Loaded tubes or trays are inserted into the patient's mouth before curing begins.

(6) Adequate setting time must be provided in the mouth, with no movement.

(7) Positive adhesion of material to tubes or trays should be obtained.

(8) Avoid distortion of the tube on removal. Tube distortion will dis-

tort soft impression material within the tube.

(9) When taking combination impressions (rubber base) in tubes with alginate or hydrocolloid in a full arch tray over them, pour impressions promptly and allow them to set in a humidor. A pure rubber tube impression may lie on the bench indefinitely. This is not true of the alginate or hydrocolloid used in combination with rubber.

Study Models

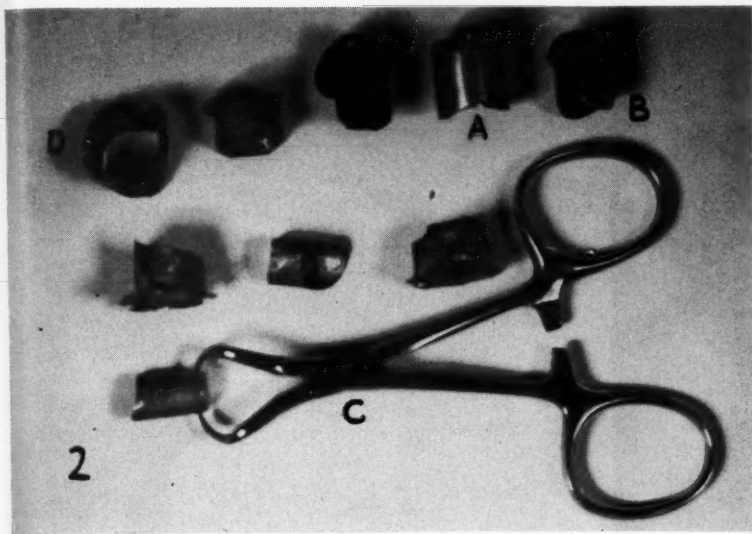
For cases involving multiple inlays or fixed bridgework (Fig. 1) full mouth alginate study impressions are poured and casts are mounted on an adjustable articulator.

Preservation of Models—If preservation of study models is desirable, repour the original impressions for making working casts. These may be used for making self-curing resin trays, fitting tubes, temporary crowns,



1. Study casts used in case planning and presentation to the patient.

¹ Skinner, E. W., and Cooper, E. N.: Desirable Properties and Use of Rubber Impression Material, JADA 51:523 (Nov.) 1955.



2. Closed end thimbles with paper clip and towel holder for removal from tooth. Flanged, crimped edges anchor occlusal seal of compound when using regular tubes.

cutting out teeth to be extracted, making wax spacers, choosing pontics.

Pouring of Impressions—The first pouring of impressions should be in stone. Half and half plaster and stone for the second pouring cuts and works more readily.

Individual Tube Impressions

Thimble Type—One end closed is preferred, $\frac{5}{8}$ inch long with a vent hole drilled in the closed end (Fig. 2). The following steps are taken:

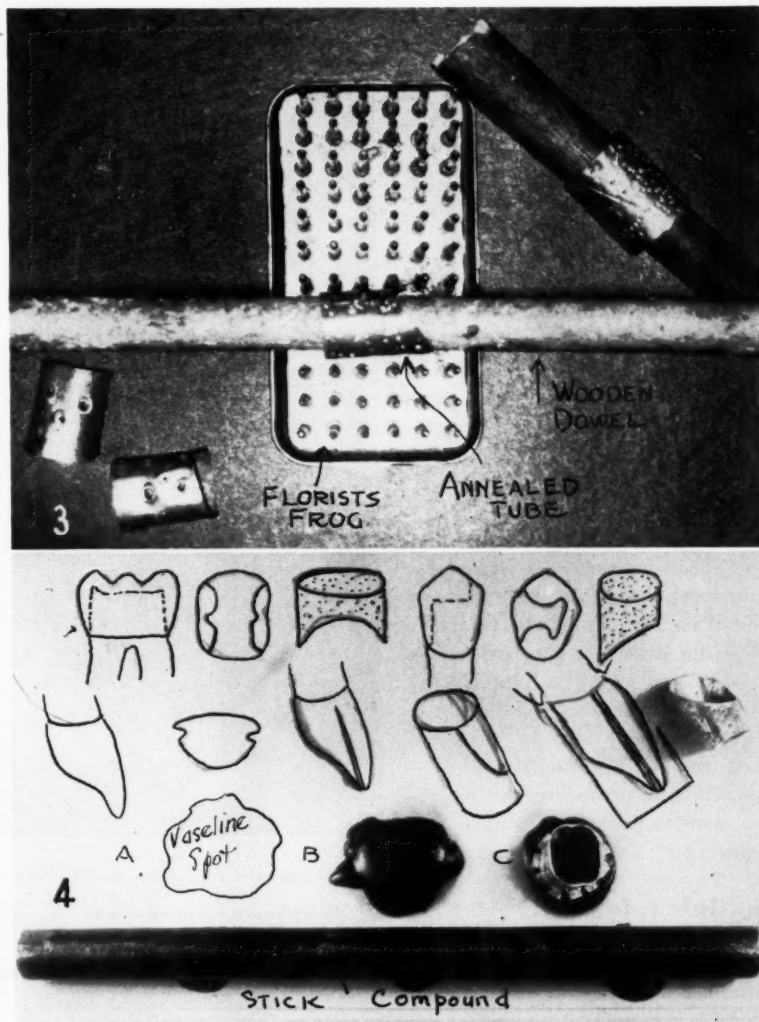
1. Buccal and lingual holes are drilled 1 millimeter below the edge of the closed end of the thimble.

2. A piece of paper clip run through and slightly bent at the ends facilitates removal of the impression from the tooth without distortion (A, Fig. 2).

3. The gingival edge is crimped in to assist in adhesion of the rubber to the tube and to deflect gingival tissues (B, Fig. 2).

3. Annealed tubes do not require perforation. Numerous indentations inside of tube give adequate anchorage to rubber.

4. Trimming tubes to eliminate any severe undercuts (A); (B) and (C) show method of sealing flanged tubes. Flange also prevents distortion in removal of impression.



4. The beaks of a towel holder may be inserted into the buccal and lingual holes to remove the impression without distortion, thus eliminating the paper clip (C, Fig. 2). This instrument is also useful for removing proximal temporary restorations and temporary aluminum crowns.

Tube Type—Both ends of the tube are open. These tubes should be at least $\frac{5}{8}$ inch long. Annealed tubes, blackened or oxidized, may be brightened by heating in a flame and quenching in a bottle of rubbing alcohol. The following steps are taken:

1. Fit the tube about 1 millimeter over size all around the gingival circumference of the preparation.

2. Slip a wooden dowel into the annealed tube (Fig. 3) and roll over the prongs of a florist's frog which

makes numerous indentations in the tube for gripping the material. The wooden dowel should be much smaller in diameter than the tube.

3. Refit on the tooth, crimp the gingival edge and eliminate any great undercuts (Fig. 4).

4. One-millimeter cuts on the occlusal end of the tube, bent outward, affords anchorage to the disc of the compound used to seal the occlusal end (D, Fig. 2).

5. To seal the occlusal end of the tube, apply vaseline to a corner of a small glass slab, drip stick compound on the vaselined spot about the circumference of the occlusal end of the tube.

6. Chill compound, heat the occlusal flange slightly, and fuse to compound.

7. Chill and remove from slab (A, B, C, Fig. 4).

Retraction of Gingival Tissue

Prior to taking an impression, troublesome gingival tissues may be managed by one of the following methods:

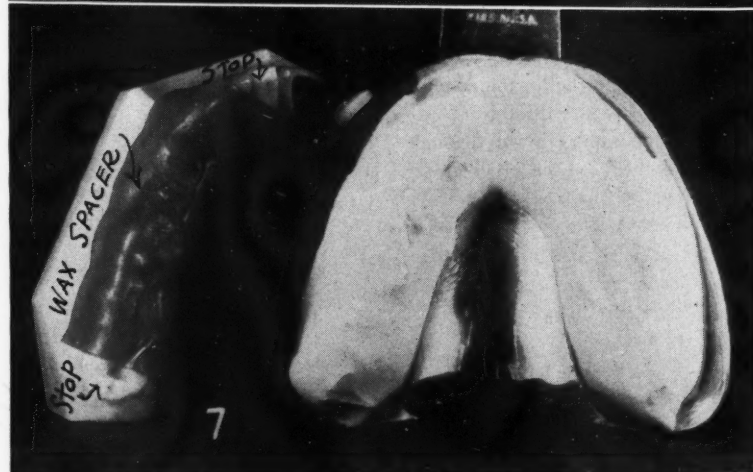
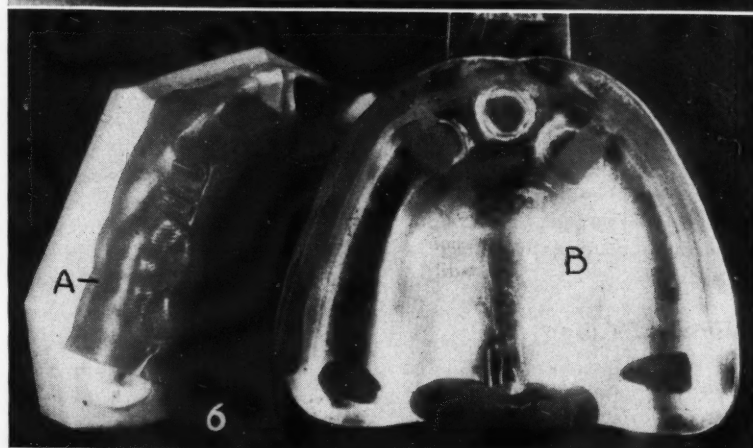
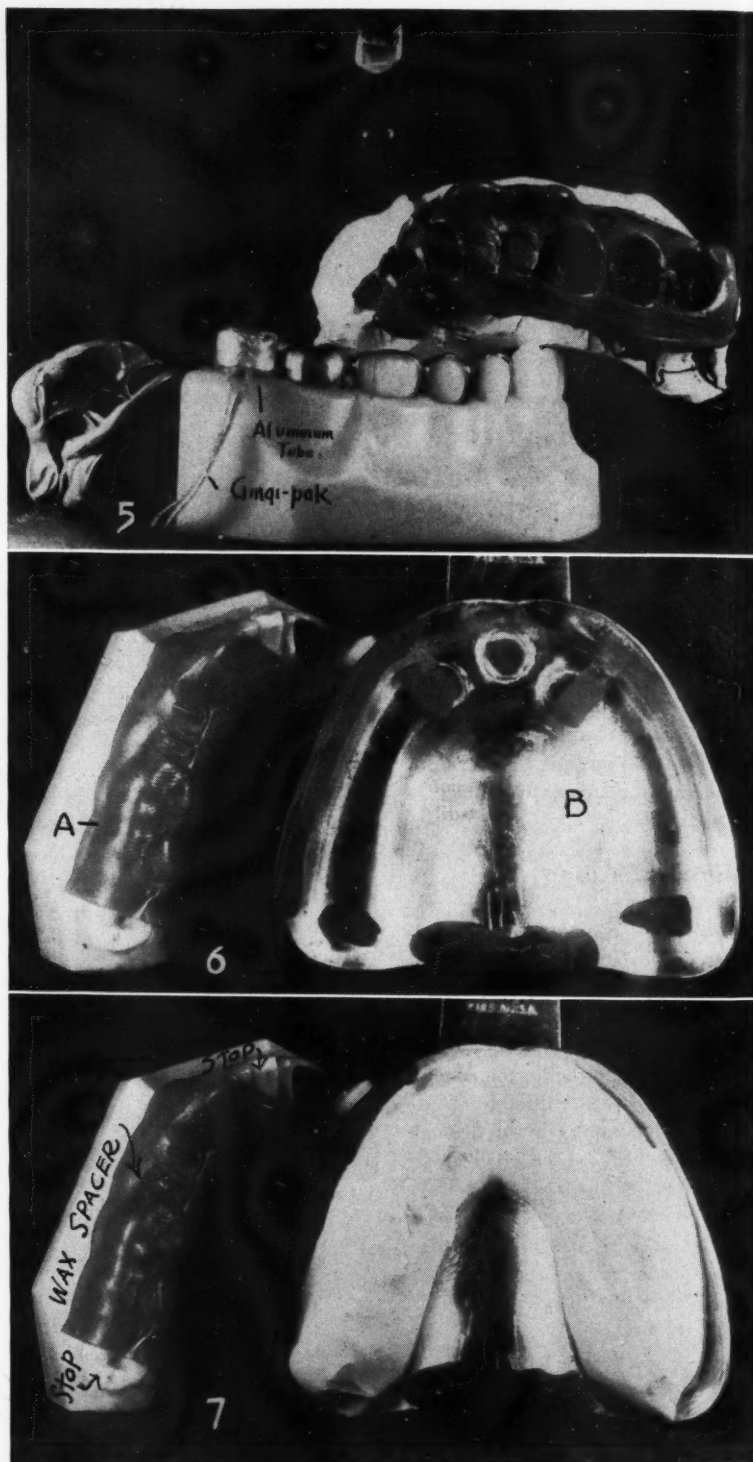
Method One—Cotton rolls are used in the buccal and lingual aspects on lower teeth. In the proximal gingival dry area, pack in a cotton pellet soaked in Ru-Stat with warmed temporary stopping or gutta-percha pressed over the pellet.

Method Two—For full or three-quarter crowns use cotton rolls, dry the area, windstring or Gingi-pak around under the free margin twice, draw snugly and press to place a well fitting aluminum shell filled with warm temporary stopping over preparation. This forces the Gingi-Pak into the crevice (Fig. 5). Allow this to remain until the rubber is mixed and placed in tube or tray. This same aluminum cap may be cemented on with zinc oxide-eugenol for a temporary crown.

When these procedures fail to free the margins, resort to surgery or radiosurgery.

Multiple Inlay and Fixed Bridge Impressions

1. A single layer of baseplate wax is warmed and adapted over the inlay or bridge area of the study cast.



5. Temporarily displacing gingival tissue by use of aluminum crown form.

6. An ordinary aluminum tray is used to take a plaster impression over wax spacer in place in mouth.

7. In fixed bridgework it is not necessary to get a deep impression or to impress the palate area.

2. Trim to pencil outline about 2 millimeters from the gingival border of the teeth (A, Fig. 6). This wax spacer is placed over the patient's teeth to be inlayed or bridged, and a shallow tray is selected (B, Fig. 6).

3. The entire natural arch, spacer in place, is slightly lubricated with cocoa butter or vaseline.

4. Impression plaster is used only in the ridge area of the tray keeping it shallow in area not covered by wax spacer (Fig. 7).

5. The plaster impression is easily removed, the wax spacer is peeled out, and the borders of the impression are trimmed shallow on the opposite side as only the occlusal third is needed for articulation.

6. The plaster impression is dried slightly by passing through a flame, it is scored, rubber adhesive is painted in the area formerly covered by the wax spacer. Rubber mix is placed in the spacer section of the plaster and the impression is taken (Fig. 8).

Stops Provided for Plaster Tray—A wax spacer may be placed around the entire arch if so desired. In this case three holes are cut through the occlusal of the wax spacer in areas not involving crowns or inlays. These holes provide stops for the plaster tray.

Dowel Pins Centered—Common pins are placed through the rubber over the teeth approximating abutments (A, Fig. 9). This is to center the dowel pins (C, Fig. 9).

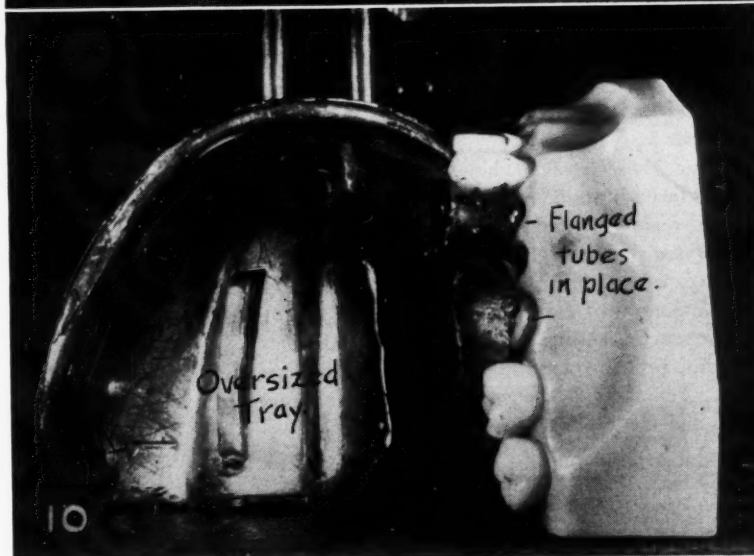
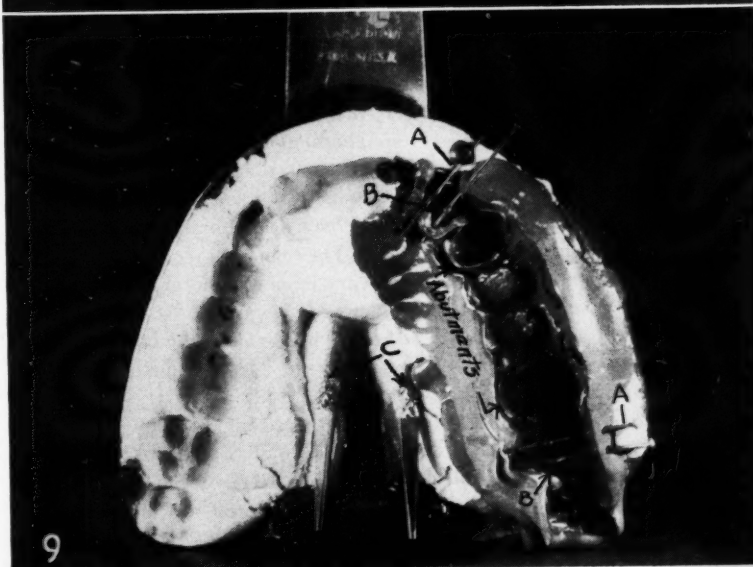
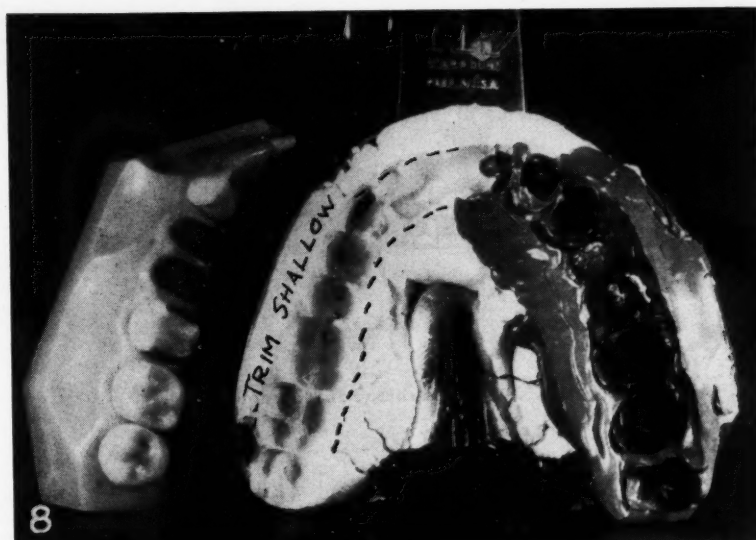
Wax Carving of Abutments—Teeth approximating abutments are poured in stone and the dowel pins inserted. These are lubricated when set and the impression is poured in stone. The resulting model has immovable abutments to ensure greater accuracy. The doweled teeth are removable to facilitate wax carving of the abutments.

(Continued on page 409)

8. Rubber material in plaster tray in multiple inlay or bridge impressions.

9. Common pins inserted through rubber to facilitate centering dowels in teeth approximating abutments.

10. Flanged occlusal ends of tube impressions in place on the teeth are well anchored into the overall impression taken in alginate or well set hydrocolloid.



Is MILK

the PERFECT FOOD?

MICHAEL RABBen, D.D.S., Phoenixville, Pennsylvania

DIGEST

As a food milk was intended by nature as the secretion to nourish the suckling animal until weaned. When so used by the species for which it was designed and prepared by the mother, it is the perfect food for that animal.

When milk of one species is used as a food for an animal of another species and certain environmental changes are made in it, whether physical or chemical, it loses its character as the perfect food for the animal to which it is given.

Based upon the foregoing premises this article challenges the widely accepted belief that cow's milk is a perfect food for infant and adult human beings. The composition of milk is detailed and the possible harmful results of an intake of this food are explored.

Variation in Composition of Milk

From the first secretion of cholestrum, milk as taken from the breasts of any species varies constantly according to the needs of the growing infant until weaned.

Little Known of Hormone Content—Milk contains antibodies¹, minerals, vitamins, proteins, fat and carbohydrate. Amino acids, enzymes, steroids², and other hormones of which

little has been written or investigated are contained in the proteins of milk. The hormone content³ of milk, however, is rarely mentioned. As often happens when knowledge of a substance is meager, the hormone factor is dismissed with the statement that it is unimportant. It would be more accurate to state that the role of the hormone substance is unknown.

Lack of Uniformity in Composition—The elements contained in milk vary in amount according to (1) species, (2) stage of lactation, (3) the food intake of the mother and her metabolism, (4) the mother's state of health. Milk is never, therefore, a uniformly composed, unvarying product.^{4, 5}

While most of the minerals considered essential in human nutrition are present in milk, it is notably poor in iron. It has been stated that the human infant is born with enough iron in its body to last it six months. When the baby begins to get teeth it is nature's sign for the child to begin eating other types of food. Before long the child is weaned.

Vitamins Present in Raw Milk—In raw milk nature has incorporated all of the vitamins necessary for the optimum health of the infant. They are present in the amounts best determined by the wisdom of nature without any additions brought about by the incomplete knowledge of man

who thinks he can improve upon the achievements of nature. The amounts of vitamins vary from species to species according to the needs of the animal.

Protein Content of Milk—Milk has been described as the perfect food because it contains all of the amino acids, because of its protein content. The proteins of milk are described as casein, lactalbumin, and lactoglobulin. The difference in content and proportion of albumin to casein in cow's milk and human milk may explain why the curds of cow's milk are so much heavier and tougher than those of human milk. It must be borne in mind that the enzymes and hormones are also present as proteins.

Difference in Fat Content—The fat of milk is valuable for the content of fatty acids and the fat soluble vitamins A, E, D, and K. There is a difference in the fat content of human and cow's milk: the fat of human milk more nearly resembles that of body fat and few or none of the fatty acids have chains shorter than ten carbons.⁶

Lactose Content Higher in Human Milk—The carbohydrate of milk is the milk sugar, lactose. The lactose content of human milk averages about 2 per cent higher than that of bovine milk. It is thought that this is so because of the larger brain of man, the food for which is galactose.

Role of Enzymes—In unpasteurized milk, the enzymes may be found in

⁶ Kleiner, I. S.: Human Biochemistry, St. Louis, C. V. Mosby Company, 1951, p. 149.

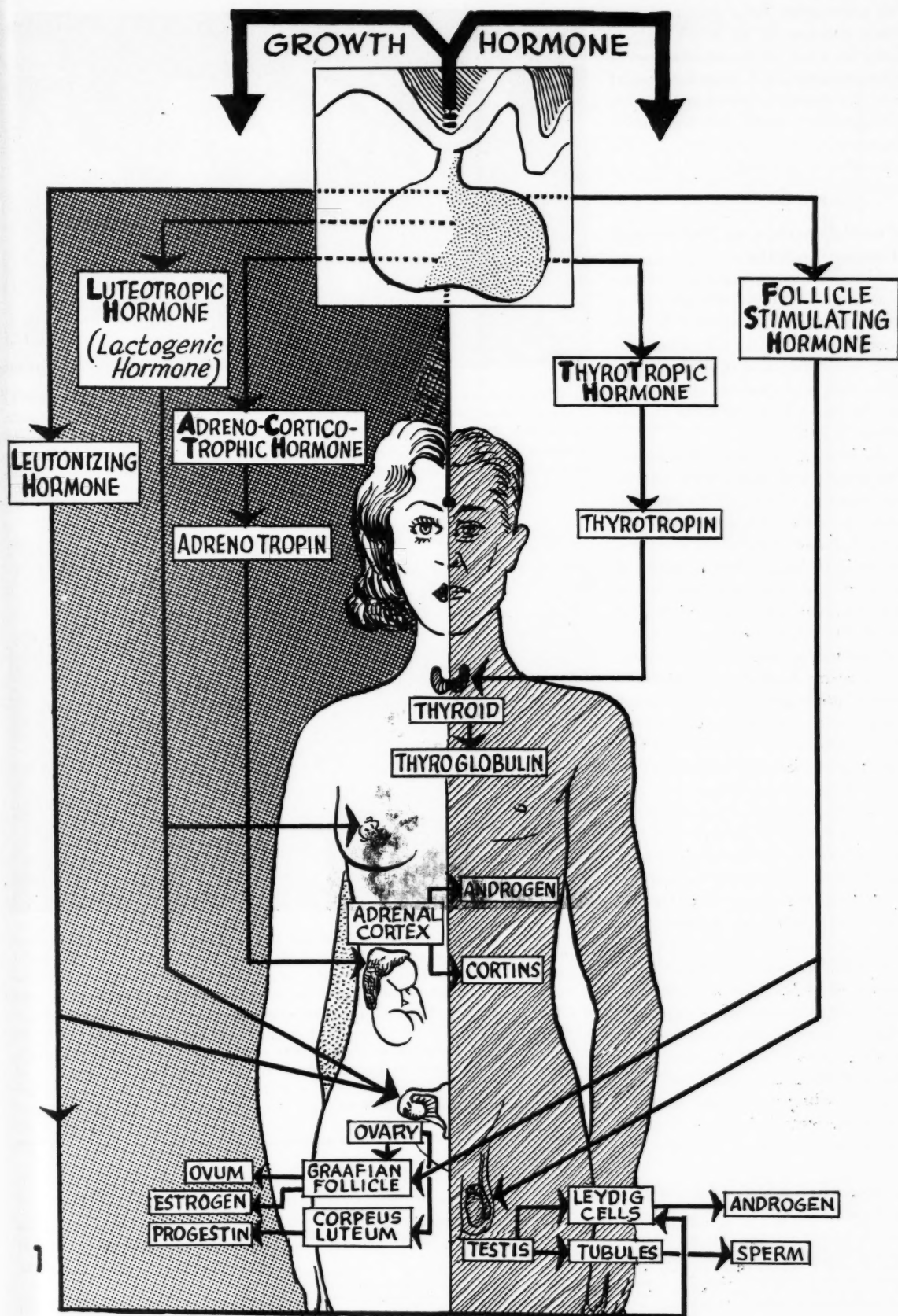
¹ Dold, H.; Wizaman, E.; and Kleiner, C.: Antiseptic in Milk, the Drug and Cosmetic Industry, Z. Hyg. Inf. 43:1-109 (July) 1938.
² Rossi, Mariano: Determination of Androgen Steroids in Human Milk, Rev. Biol. (Perugia) 45:503-511 1953. Phenolsteroids discussed, see also Footnote 18.

³ Pascoli, Ferruccio: Estrogen and Androgen Hormones in Cow's Milk, Gazz. Sanit. 24:336-337, 1953.

⁴ Kleiner, I. S.: Human Biochemistry, St. Louis, C. V. Mosby Company, 1951, pp. 144-145.

⁵ Munch, Udo: Secretion of Natural Androgens and Estrogens in Milk (Cow), Milchwissenschaft 9:150-153, 1954.

1. Drawing showing the hormones of the anterior pituitary gland.



an active state. As a matter of fact, their presence in an active state is used as a test of the effectiveness of pasteurization. The enzymes present are a catalase, a peroxidase, and a phosphatase. Their role in human metabolism seems unknown, but the phosphatase is thought to ensure the utilization of calcium.

Consideration of Hormonal Factor in Milk

Milk, as many other foods of animal origin, contains steroids. These are not usually mentioned in biochemistry texts. The hormonal content⁷ is not discussed at all. In discussions with food chemists blank stares are the response to questions of hormones in milk.

Initiation of Lactation—It is known that lactation is initiated by one of the hormones of the anterior pituitary body, prolactin. Certainly this hormone is found in the blood when lactation is to begin. Milk is made of blood as are other glandular secretions whose nutrition is furnished by blood. Other hormones must be present because in cases of acromegaly, an endocrine dysfunction, lactation is unduly prolonged after childbirth.⁸ Under certain circumstances, such as the use of estrogen in males and testosterone in females, milk may be secreted.

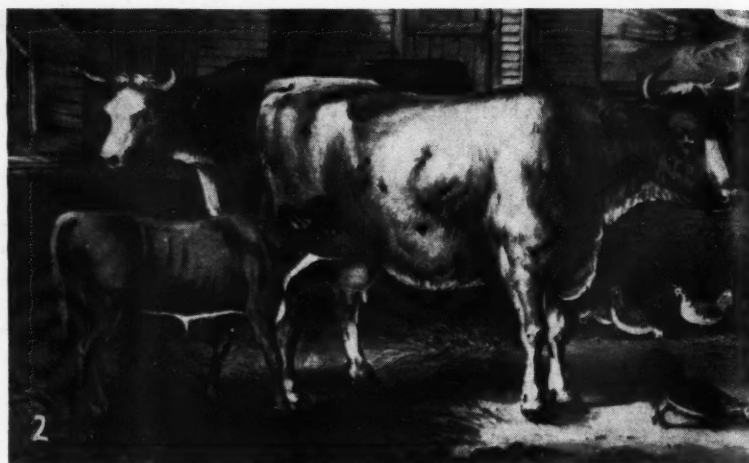
Possible Presence of Growth Hormone—It has been thought that the growth hormone of the anterior pituitary body may be present because the greatest amount of growth of the infant takes place during the first year of life when its food is principally milk. Children who are heavy milk drinkers have been known to exceed their parents noticeably in growth. Indeed, Spies⁹ describes experiments in which growth was stimulated by giving children two quarts of milk daily, exceeding the skeletal maturation of the controls by 93 per cent.

Lactation Increased by Growth

⁷ Rossi, Mariano: Determination of Androgen Steroids in Human Milk. *Rev. Biol. (Perugia)* 45:503-511, 1953. Phenosteroids discussed, see also Footnote 18.

⁸ Kleiner, I. S.: *Human Biochemistry*. St. Louis, C. V. Mosby Company, 1951, pp. 144-145.

⁹ (a) Spies, Tom D.: Influence of Pregnancy, Lactation, Growth, and Aging on Nutritional Processes. *JAMA* 153:186 (Sept. 19) 1953. (b) Watson, E. H., and Lowrey, Geo. H.: Growth and Development of Children. Chicago Year Book Publishing Co., 1954, p. 88.



2. This illustration is an accurate reproduction of a lactating cow (calf present) of the era circa 1860. This is a portion of a Currier and Ives print of that date. Note udder size as compared to the Holstein in Figure 3. The Holstein was first imported into the United States in 1861, registry was started in 1865. The cow shown here is not a pure breed but is typical of the average farm animal of the time. The milk production bore no comparison with that of any of today's breeds.



3. This cow, a Holstein, is 8 years old and gives 60 pounds of milk daily (about 30 quarts). Note the enormous size of udders compared to those of the cow of the 1860 era. The Holstein today is the largest cow of any breed and gives the most milk. The growth hormone and the lactogenic hormone both come from the anterior pituitary. The bull has an average weight of about 2250 pounds.

The characteristics of this animal may be found in the book "Dairy Cattle" by William W. Yapp, Professor of Dairy Cattle Husbandry, College of Agriculture, and Chief of Dairy Cattle in the Agriculture Experimental Station, University of Illinois, and William Nevens, Professor of Dairy Cattle Feeding, College of Agriculture, ed. 3, New York, John Wiley and Sons, Inc., 1950, p. 72, Chart 14.

Hormone—It has been shown that the pure growth hormone of the anterior pituitary increases lactation in cows better than prolactin.¹⁰ The thyroid,

¹⁰ Coates, P. M.; Crighton, J. A.; Folley, S. J.; and Young, F. G.: *Nature* 164: 992, 1949. From Ucko, H., *Endocrine Diagnosis*, New York, Staples Press, 1951, p. 482.

posterior pituitary, and adrenal cortex are known to have an influence on lactation. The androgens, including progesterone, are also recognized as exerting an effect upon lactation.

¹¹ Grollman, A.: *Essentials of Endocrinology*. Philadelphia, J. B. Lippincott, 1947, p. 570.

These hormones must all be transported by the blood.

Effect of Gross Amounts of Hormones in Milk—There is known to be a milk factor in the transmission of cancer.¹¹ Cancer is described as cells in runaway growth. It is difficult to believe that milk from cows bred as endocrine freaks which continue to give milk past the weaning time of the calf should not contain inordinate amounts of hormones.¹² What may be the effect of these hormones upon persons has not been studied to any great extent.

Factors Concerned in Pasteurization of Milk

That pasteurization causes changes in milk cannot be denied although the effects are often minimized. The farmer knows that a calf fed pasteurized milk exclusively will die. Why the perfect food produced by the calf's own mother for its exclusive use should be inadequate merits investigation. If it is imperfect as food for the calf, is it not also imperfect as food for a human being?

Valuable Elements Lost—It is admitted that upon pasteurization and upon exposure to light and air milk, which is already deficient in iron, loses at least half of its vitamin C, 25 per cent to 38 per cent of its B complex. Minerals are precipitated out or rendered less soluble, and the enzymes lipase and phosphatase are destroyed, thus rendering the absorption of calcium virtually impossible or minimal. What is there then to recommend pasteurized milk as the perfect food?

Bacterial Protective Action Destroyed—The antibodies of milk are destroyed by pasteurization, thereby causing a loss of protective action against bacteria. For this reason, pasteurized milk is known as an excellent culture medium for bacteria. Witness its frequent role as a carrier for disease as it did recently in Lancaster, Pennsylvania for paratyphoid.

Homogenized Milk Deceptive in Appearance—When milk is homogenized it is quite possible for the product of diseased cows or milk of poor quality to be unrecognized and sold

Chicago Sunday Tribune

June 3, 1956

HEART EXPERT URGES U. S. CUT MILK DRINKING

Madison, Wis., June 2—Dr. Irvine H. Page, Cleveland, director of research of the Cleveland clinic and a heart specialist, said today the American people should drink less milk. Dr. Page is president of the American Heart association. He made the statement at a

news conference while here to attend the annual meeting of the Wisconsin Heart association.

"We still haven't got the whole picture, but probably the fat content of the diet of the American people should be reduced to 20 to 25 per cent of the total caloric intake," he said. "I'll probably get shot for saying this in a dairy state, but the American people should drink less milk."

4. Excerpt from Chicago Tribune, June 3, 1956.

as good milk because of its uniform appearance.

Rate of Bacteria Permitted—Standards of the Department of Dairy Industry¹³ call for certified raw milk delivered to the consumer to have no more than 10,000 bacteria per milliliter, pasteurized grade A milk, 50,000, and pasteurized grade B milk, 100,000.

Antibodies Present in Raw Milk—In my locality we can obtain uncertified raw milk which consistently runs to no more more than 2,000 bacteria and has been doing this for years. The cows in this herd have also been free from mastitis or Bang's disease for at least ten to fifteen years. This ought to bear out the statement that in raw milk antibodies are present. It is only if milk is not fresh or if it is pasteurized that it will support bacterial life.

Possible Means of Contamination—Milk can be contaminated by careless, unclean handling, manipulation, and delayed delivery to the consumer. This is frequently the case when this commodity is produced commercially and is subject to prolonged operations by the distributor. Pasteurization, however, will not render cow's milk bacteria free.

Cow's Milk as Substitute for Human Milk

Bovine milk was intended by nature as food for the calf. It must, therefore, be modified to more nearly approximate the levels of the various elements in human milk when it is fed to a human infant. Even then it can only rate less than second best as a substitute for human milk.

Changes in Formula—The protein content is usually diluted with water, the carbohydrate content is increased with dextrose or syrup instead of lactose, and sometimes, if directed, the manipulator of the formula adds a few drops of acid to cow's milk to produce a finer curd before feeding the mixture to an infant. Nothing, however, is done to approximate the other elements of human milk such as the minerals or vitamins. They are usually dismissed as unimportant. As a result, the system of the infant rebels.

Results from Use of Cow's Milk in the Infant—Colic, diarrhea, constipation, diaper rash and sleeplessness are frequent results. In the colon, human milk gives an acid reaction while cow's milk gives an alkaline reaction. It should be remembered that the cow is herbivorous while the human is omnivorous.

Allergic Reactions Common—As reported in the *Annals of Allergy*, March-April, 1951, allergic reactions are common.¹⁴ Studies are described

¹² Pascoli, Ferruccio: Estrogen and Androgen Hormones in Cow's Milk, *Gazz. Sanit.* 24:336-337, 1953.

¹³ (a) Milk Ordinance and Code, 1953 Recommendations of the Public Health Service. U.S. Public Health Service Publication 229, 242 pages, illustrated, 1953. (b) Federal and State Standards for the Composition of Milk Products. U.S. Bureau of Dairy Industry. U.S. Department of Agriculture Handbook 51-8, 1953. (c) American Association of Medical Milk Commissions, Inc., 1262 Broadway, New York.

on 140 children who suffered hives, constipation, sneezing, colic, vomiting, coughing, and loud, coarse breathing. All of these symptoms were relieved as soon as milk was eliminated from their diet. Until this allergy was recognized, the children had submitted to many tests and treatments and, in some cases even surgery.

Food Allergies in Children—McClendon¹⁵ reported to the American Medical Association that "It could be a food allergy which is making a child over three years of age irritable, tired, or subject to frequent colds, recurrent diarrhea, constipation, or abdominal pain. When a food allergy is responsible, milk or one of its products is frequently the guilty thing, and avoidance of the offending food can bring spectacular results."

Pediatricians Frequently Prohibit Cow's Milk—Many informed pediatricians take their patients off milk but do not advertise the fact.^{16,17} In speaking to the Maryland Academy of General Practice, Krause¹⁷ denied the importance of milk. He pointed out that in Biblical lands children never drank milk after they were weaned. In our practice children have been observed who have lost their asthma, sinusitis, or allergies upon stopping the use of milk. It should be evident that cow's milk is not an appropriate food for the human child; certainly it is less than second best for the infant.

Factors Involved in the Use of Cow's Milk by the Adult Human Being

Consideration of cow's milk as a perfect food for the human adult should include knowledge of its action clinically. The public is constantly encouraged to drink milk for sounder teeth and as a measure to prevent caries. A cursory clinical observation, however, reveals that heavy milk drinkers have a high degree of caries.

Conditions Noted by Pediatricians—It has been reported by pediatricians that heavy milk drinkers may have anemia, rickets, excessive lymphoid proliferation, excessive production of mucus, malnutrition, endocrine dysfunction such as hypogonadism,¹⁸ excessive depositions of calcium, kidney disorders and even rectal bleeding.¹⁹

Possible Stimulating Factor—Donaldson²⁰ notes that milk may be a factor in the production of poliomyelitis and sleeping sickness. He believes that milk produces "peptone shock" thereby lowering the body defenses to bacteria. "Modern cheese," he states, "seems to act as a very great irritant in the blood stream." In our daily practice of nutritional therapy we have observed that when milk is removed from the diet the patient complains of lassitude and fatigue.¹⁴ This is also reported by Clein¹⁴ and suggests the possibility that milk is a stimulant.

Growth Factor of Anterior Pituitary—Page²¹ believes that among other hormones milk contains the growth hormone of the anterior pituitary. He has noted that virtually all cases of cancer have an overactive anterior pituitary.

Milk Drinker's Syndrome—Medical literature describes a "milk drinker's syndrome"²² in which depositions of calcium are found, especially in the joints. While these changes are thought to be reversible upon stopping milk, only one case was found to have survived to be studied.

Renal Impairment and Alkalosis—Kyle²³ finds that Burnett's Syndrome results from renal impairment and alkalosis combined with increased intake of milk and alkalies.

Comment

People in general are not able to

judge as to the amount of milk suitable to take: if some milk is good, more is better. Immoderation in this respect, however, produces an imbalance in the diet. Milk has a tendency to displace other foods from the diet. Variations in the nutritional requirements, and in the reactions of people to foods, make it difficult to predict the precise results to be expected from an excessive intake of milk. If nature intended that adults drink milk, why would she supply rennin in the stomach of the infant but not in the stomach of the adult?

Gay Street at Church

Food Technology is Advancing—But the Food is Worse

ACCORDING to the *Medical Press*, a British journal for physicians, we have started down a long, steep slope of sophistication, processing, bedevilment—call it what you will—the end of which we cannot foresee. Scarcely a single article of diet arrives on our tables unembellished by the technologist's art. Most of the substances employed are as yet enigmatic—we do not know their long-term effects, though some we do know now to be potentially poisonous. Unless the medical profession takes a firm stand, expediency will continue to triumph over caution and common sense, and we may well be faced with irreversible results.

It is more than time, states the *Medical Press* that our present lethargy and inertia were replaced by an alert and suspicious vigilance and that all proposed and existing food additives were subjected to the sharpest scrutiny else we may well spend the next generation in medicine trying to unscramble the harm that has been done to the human organism by prevalent factory practices in preservation, processing, and sophistication of foods.

From *Consumers Research Bulletin* (March) 1954.

¹⁴ Clein, N. W.; Allergy in Infants and Children, *Modern Medicine* 24:69 (Feb.) 1956.

¹⁵ McLendon, Preston A.; Medical Report to Clinical Session of the American Medical Association, *Today's Health* (March) 1955.

¹⁶ Lynch, Harold D., and Snively, William D., Jr.; Is Your Child Underprivileged? *Modern Nutrition* 15:13 (March) 1952.

¹⁷ Krause, Louis A. M.; Address before the Scientific Session of Maryland Academy of General Practice (June 5, 1952) Hagerstown, Md.

¹⁸ Pottenger, Francis M., Jr.; What is Milk and What Does it do for People? *Modern Nutrition* 6:11 (Jan.) 1953.

¹⁹ Antia, F. P., and Cooper, S. H.; Chronic Rectal Bleeding, *Brit. M. J.* 4927:1416 (June 11) 1955.

²⁰ Donaldson, Blake F.; Paper, Sinusitis, read before the Reading, Pennsylvania, Eye, Ear, Nose and Throat Society, Nov. 13, 1946.

²¹ Page, M. E.; Degeneration-Regeneration, St. Petersburg, Florida, Page Foundation, 1949.

²² Dworetzky, Murray; Reversible Metastatic Calcification (Milk Drinker's Syndrome), *JAMA* 155:830 (June 26) 1954.

²³ Kyle, Lawrence H.; Hyperparathyroidism and Burnett's Syndrome, *New England J. M.* 251:1035 (Dec. 23) 1954.

Types of ESTHETIC CORRECTIONS

CARL STONER, D.D.S., New London, Connecticut

DIGEST

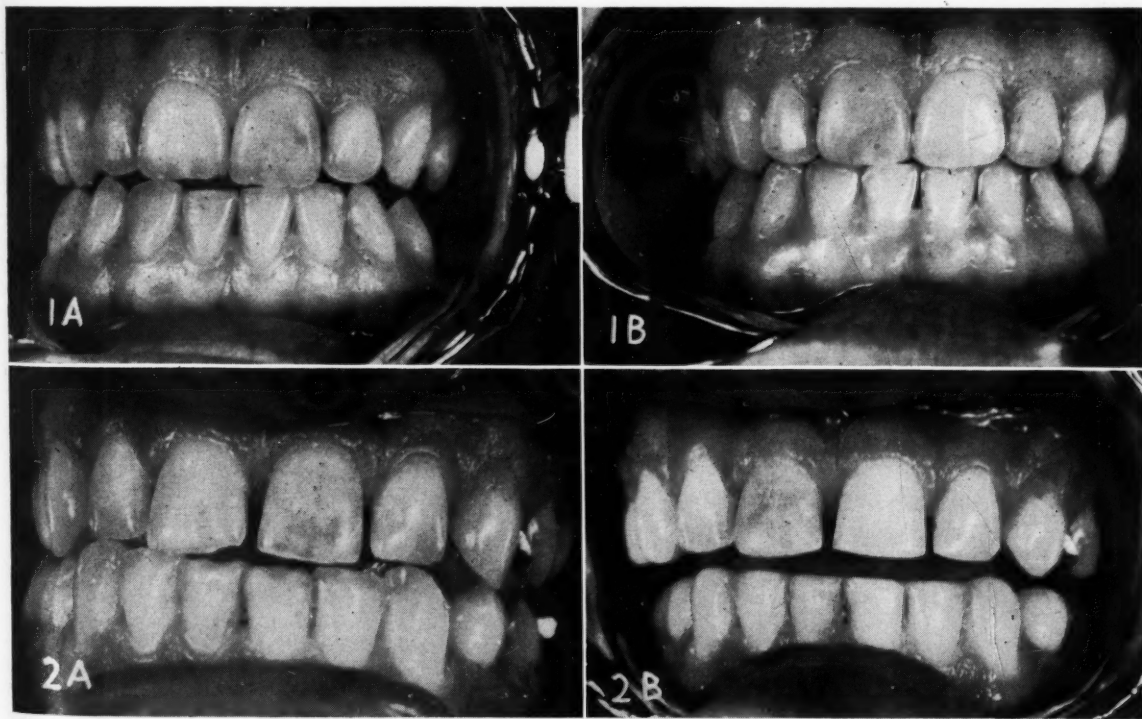
Dentistry has been defined as the study and treatment of functional and esthetic aberrations of the teeth and oral tissues. Although the elimination of pathologic conditions and restoration of function has rightfully been the primary concern of most dentists, the consideration of esthetics has for the most part been limited to shade matching in jacket crowns and restorations, and tooth arrangement in full

dentures. There are innumerable cases where esthetic improvements that would be a great service to the patient remain undone because the dentist is unaware of the possibilities of treatment, or because he feels it improper to recommend treatment, the primary purpose of which is to enhance esthetics. This article illustrates some of the conditions requiring esthetic rehabilitation and the step-by-step procedure to be used.

Common Approach to Esthetics in Dentistry

In his wish to maintain or elevate the professional status of dentistry many dentists hesitate to place too much emphasis on esthetics feeling that this might lower the status of the dentist to that of a cosmetician.

Fallacies in Approach—The main fallacy in this approach is that since the fundamental concept of dental esthetics is based on the physiologic norm any variation of the norm can be construed in a strict analysis as pathologic. The plastic surgeon, for instance, is certainly justified in his reconstruction of congenital or acci-



1A. The teeth of an 18-year-old girl are shown. Minor irregularities and chipped edges were of concern to the patient.

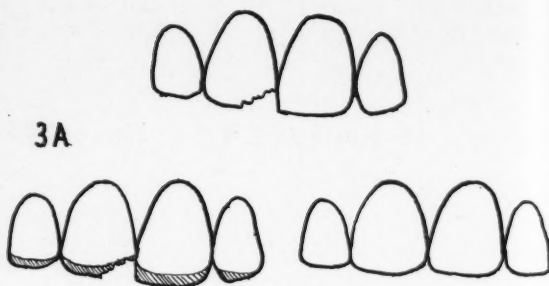
1B. The teeth shown in Figure 1A were rehabilitated esthetically with the use of diamond stones, sandpaper discs,

and other polishing agents.

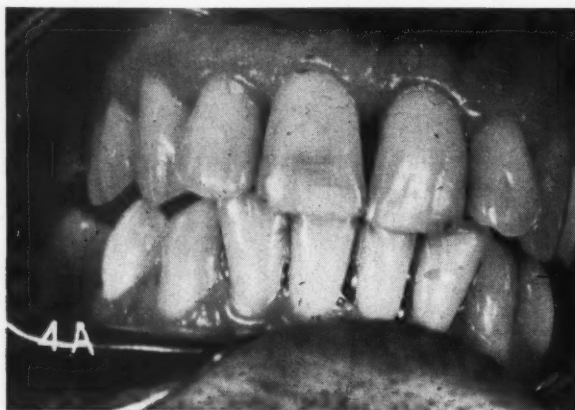
2A and 2B. Shows the improvement possible in a case of a 35-year-old man whose teeth had been badly abraded by bruxomania. Figure 2A, before treatment; Figure 2B, after treatment.



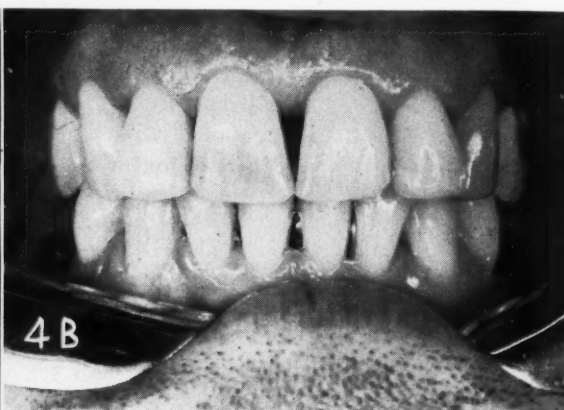
3A. A more extreme case is shown where a corner of one or more teeth has been fractured. Naturally, if a large portion of the tooth has fractured away a restoration is necessary. However, many cases can be best served by reshaping the teeth as shown thus making a restoration unnecessary. The teeth are ground according to the shaded areas.



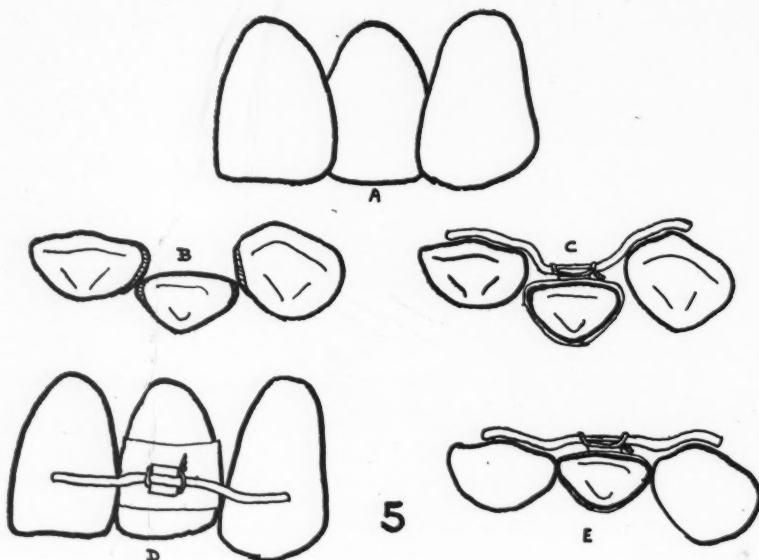
3B. Many times it is advantageous to pencil the study model in planning the treatment which will serve as a guide for grinding. This is also helpful in presenting the treatment plan to the patient.



4A and 4B. A slightly different type of case is illustrated here: a young man annoyed with what he called "horse teeth." Because of the length of the teeth a periodontal condition also had been initiated. Shortening of the teeth

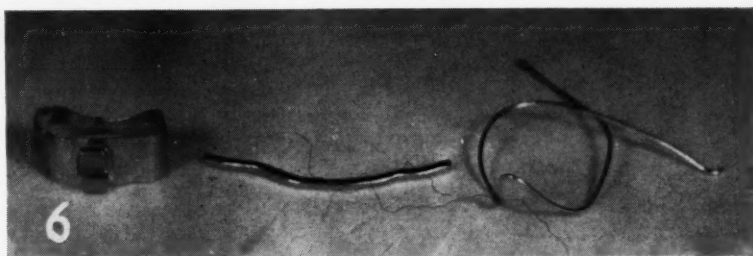


establishing group function resulted in a greatly improved appearance and a happy patient. Figure 4A, before treatment; 4B, after treatment.



5. The steps involved in this procedure are illustrated. First, the approximating surfaces are carefully stripped and polished according to the shaded areas (B) to create the necessary space for movement. The size and anatomy of the teeth will determine which teeth require reduction in size. It is extremely important at this stage not to leave the approximate contacts broad and flat as a result of stripping. They should be rounded labiolingually to restore ball-point contact. An orthodontic band is then fitted and cemented to place with an edgewise bracket attached. A short piece of edgewise (rectangular) wire is contoured to the labial aspects of the central incisor and cuspid extending across at least 2/3 of the labial surfaces of these teeth. It is adjusted to apply a slight amount of lingual pressure against the central and cuspid when the center of the wire is pressed to position in the edgewise bracket. It is fastened to this position with ligature wire (C). It becomes ap-

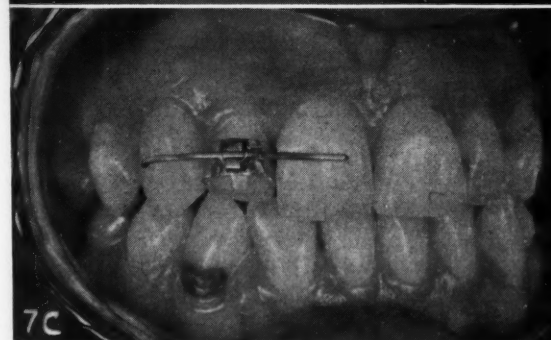
parent here why a rectangular wire and bracket rather than round are used. The fact that it is only attached to the one tooth that is moving would allow a round wire to rotate in the bracket and the pressure would not continue to be exerted in the direction desired. Since the central and cuspid are the stronger teeth and are also locked in position by the nature of the arch form and occlusion, the lateral will be drawn labially. Weekly adjustments of the wire are necessary until the lateral has jumped the bite and is in the desired position (E). The appliance should be kept in place passively for a few weeks after this and then removed. In most cases of this sort no retainer is necessary as the nature of the occlusion prevents the lateral from moving lingually.



6. The entire appliance used is shown: the band and bracket, piece of rectangular wire, and ligating wire.

dental facial defects, or even operations designed primarily as an improvement in facial proportions.

Results of Esthetic Defects—It has long been recognized that such defects, including defects of position, shape, or



7A. A typical case presenting the situation described in Figures 5 and 6. Note the extremely large central incisors as compared with the other teeth, also the large discrepancy between the upper and lower midline.

7B. The patient, a young woman of 28, had always been so self-conscious of the condition shown in Figure 7A and the lingually placed lateral that she had never had a photograph taken showing any of her teeth. At no time had it been suggested to her by her dentists that treatment were possible other than a complete orthodontic strap-up or extraction of the lateral with subsequent replacement by fixed bridgework. In this particular case it was decided to create the necessary space by stripping both central incisors mesially and distally, the immediate result of which was three areas of open contact.

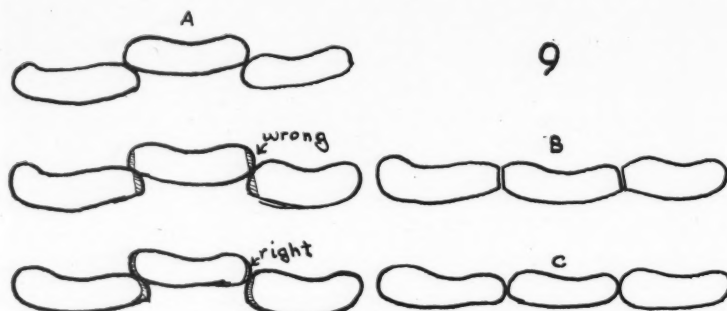
7C. The areas of open contact closed as the lateral incisor was moved labially into position forcing both centrals toward the patient's right side. Treatment continued over a period of about 10 weeks, when the appliance was removed.

7D and 7E. The lateral is now in proper alignment; the midline is more nearly correct; the centrals have an improved size and shape, and the patient is happy and grateful.



8A and 8B. Similar to the case shown in Figure 7, this one involves a central incisor on a girl of 24. The tooth is in linguoversion. The anterior teeth were stripped on the proximal surfaces to create space and the tooth was moved into position with an appliance similar to that shown in the pre-

vious case. This case is not self-retaining, however, due to the overjet and so the patient wears an all-acrylic retainer at night. Note also that all the anterior teeth have been reshaped in the manner earlier described. Figure 8A, before treatment; Figure 8B, after treatment.



9. It is conceivable that in a procedure such as this the potential caries susceptibility may be increased due to the thinning of the proximal enamel. Particular care should be given to creating proper contour and to polishing these areas after stripping and instructing the patient in cleansing procedures including the use of dental floss.

This illustration shows how teeth should be stripped resulting in a convex proximal surface. This results in point contact when teeth are moved together (C). (B) shows incorrect stripping and the broad flat surface contact which results.

color of the teeth, not only may place limitations on the patient in his business or social world but may create psychologic disturbances of a serious nature. The all-important factor is, of course, whether the patient feels that there is a need for improvement. In other words, is the patient unhappy about the appearance of his teeth?

Dentist's Responsibility

It is the dentist's responsibility to inform the patient of the possibility of improving his appearance, should he feel it advisable. Many patients who greatly desire this type of treatment

hesitate to mention it because they are unaware that successful treatment could be accomplished or perhaps because they fear that to request such treatment might be construed as an expression of excessive vanity. These patients are the very ones who are most grateful for this particular type of treatment.

Basis of Wish for Corrective Treatment—The patient's desire for corrective treatment should be based on (1) an intelligent appraisal and understanding of the type of treatment indicated and the length of time involved, (2) the amount of improve-

ment to be expected, and (3) possible postoperative problems.

Misunderstanding Fostered by Lack of Information — Failure by the dentist to discuss all of the factors involved with the patient before starting treatment will only invite misunderstanding and possible failure of the treatment due to lack of cooperation.

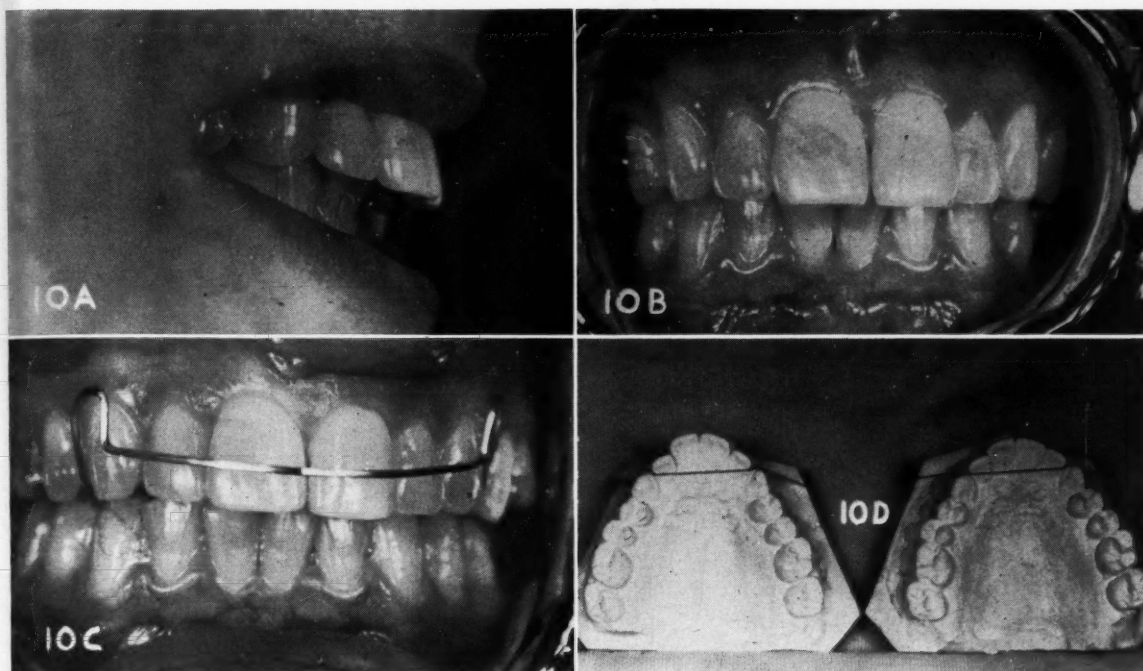
Types of Cases Discussed

It is not within the scope of this paper to present the entire field of esthetic dentistry. Dentures, bridges, jacket crowns, and other restorative procedures which have been written of extensively will not be considered in this paper. Rather, a few types of cases of common occurrence which are often neglected or mistreated, and their proper treatment will be discussed.

Indications for Contouring

Contouring of the teeth with various handpiece instruments may be necessary as a result of the following conditions:

- (1) Fracture of one or more anterior teeth involving only an incisal corner
- (2) Chipping of the edges of incisors
- (3) Minor irregularities of tooth position
- (4) Congenital malformation of the teeth
- (5) Teeth abraded excessively



IOA, IOB, and IOC. This type of case requires the full cooperation and understanding of the patient. The problem: typical Class II malocclusion with overjet of the upper anterior teeth. The patient, a young woman, was extremely concerned but refused complete orthodontic therapy. As a substitute measure the contact areas of the upper anterior teeth were stripped creating a good deal of space and allowing these teeth to be tipped lingually. This was accomplished with the use of a modified Hawley retainer. This type of case is not self-retaining and the patient should realize

before treatment is begun that she will probably wear the retainer at night for a long period of time, possibly for life. It is now evident how important it is that the patient should strongly desire this type of treatment and have complete understanding of all contingencies at the outset.

IOD. The preoperative study model of the patient is shown on the left and the completed case on the right. A piece of black thread has been stretched distal to the laterals so that the amount of improvement can be easily seen.

(6) Abnormally large teeth

Chipped Edges and Irregularities—

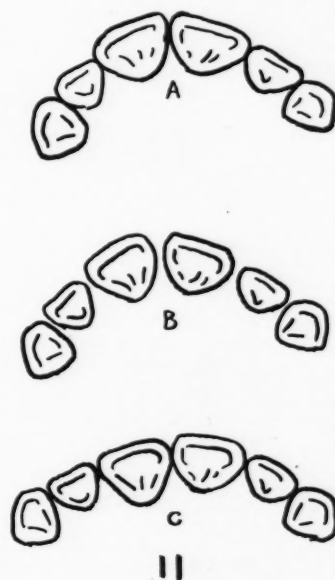
Figure 1 shows the teeth of an 18-year-old girl. Obviously, the teeth are not particularly unattractive but the chipped edges and minor irregularities were of great concern to the patient. She requested that some correction be made. In about ten minutes' chair time the teeth were smoothed, reshaped, and polished to esthetic contour. This was accomplished with the use of diamond stones, sandpaper discs, and other polishing agents, preferably with a water spray.

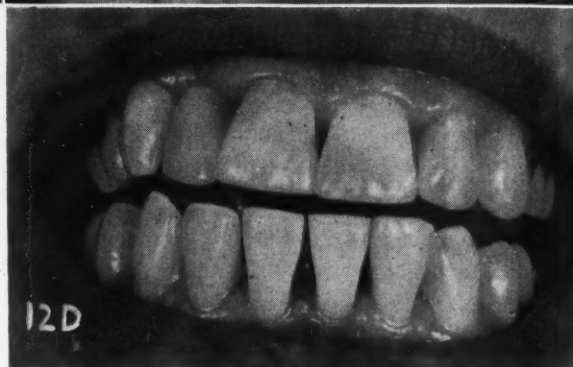
Crowded Anterior Teeth in the Adult—A more complex problem often confronting the dental practitioner is the one of crowded anterior teeth in the adult patient. In many of these cases an ideal result could be achieved

through complete orthodontic therapy. In the adult patient, however, this is often contraindicated for a variety of reasons. In these cases much can still be done to afford satisfactory results.

Condition may be Source of Disease: A common example of this is an upper lateral incisor in linguoversion with inadequate space between central incisor and cuspid. In addition to poor esthetics, occlusal traumatism, improper gingival contour and chronic food impactions make this type of condition not only unesthetic but pathologic. Fortunately many of these cases are simple to treat.

11. Diagrammatic sketch (A) of the case shown in Figure 10 before treatment; (B) after stripping the anteriors to create space; and (C) after the teeth have been moved into contact.



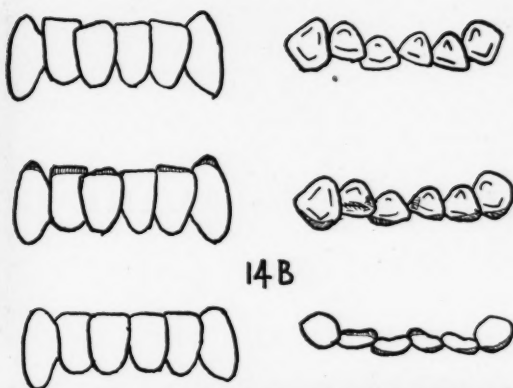


12A, 12B, 12C, and 12D. This is a case of a patient requiring periodontal treatment exhibiting a pattern of tooth drifting commonly seen. Sometimes periodontal treatment alone will result in the movement of the teeth to their proper position. Such was not the case here. The six lower anterior teeth were ligated with stainless steel wire which was tightened at weekly intervals as the teeth moved together. The upper right central incisor was moved into prop-

er contact by the use of grassline ligature as shown in this diagram. The left central and lateral were anchored together with the ligature to prevent the left central from moving. Self-curing acrylic was added to the lateral incisor pontic to prevent the central from drifting back when the ligature was removed. The teeth were then reshaped to establish group function as well as to improve appearance.



13A, 13B, and 13C. If the teeth are extremely crowded and the patient is young, consider the possibility of merely removing one of the incisors, usually the one that is most severely out of alignment. Sometimes no further treatment will be necessary as the remaining teeth will tend to realine themselves. In this case, (B) shown two months after extraction, some incisal reshaping will greatly improve the result (C). The patient is a girl of 16.



14A, 14B, 14C, and 14D. Here is a case similar to the one which was treated by extraction (A). This patient, however, is a woman of 50. The teeth would not realine themselves after extraction as in the other cases. It was decided to reshape the teeth producing more esthetic contour. This was done as shown in the diagrammatic sketch (B),

the shaded areas illustrating the manner in which the grinding was performed. (C) shows the case immediately after this was done. (D) shows the before and after study models. Reshaping with stones was all that was done. No tooth movement was necessary.

Treatment: Creation of adequate space for the misplaced tooth is first accomplished by judicious narrowing of the adjacent teeth, usually with linen and lightning strips, although there are some occasions where diamond and sandpaper discs may be used to advantage.

Crowded and Overlapping Lower Incisors—No discussion of this sort would be complete without mention of the problem of crowded and overlapping lower incisor teeth. This is an ex-

tremely complex problem and will be dealt with more completely in a later paper. Cases, however, are presented here which are typical and can serve as a guide for treatment.

The elimination of disease, alleviation of pain, and restoration of function must always remain the primary objectives of the dentist. In many cases by being concerned only with these, an improvement in esthetics will also be the result. Many other cases will be encountered where only slight

modifications in treatment will enhance the appearance of the patient. There are, however, times when esthetic improvement is the primary requisite of treatment.

The types of cases and their treatment which have been discussed can and should be a part of every dental practice. In addition to a new source of revenue the dentist will find this field a major source of patient gratification.

325 State Street

Techniques of Rubber Base Impressions

(Continued from page 397)

Anchorage Secured—Impressions may be taken by using copper tubes (C, Fig. 4). The flanged occlusal of the tubes gives adequate anchorage (Fig. 10) for taking an impression in an oversized tray over the tubes and entire arch.

Combination Impressions—The overall impression will draw accurately since the rubber base in the tubes and the alginate in the tray are both elastic. Combination impressions, however, should be poured promptly and allowed to set in a humidior.

Whole Arch Impressions Recommended—Because good occlusion is paramount in any restorative procedure, whole arch impressions are recommended.

(End First Installment)

7200 Exchange Avenue

Obliterating the FLARING APICAL FORAMEN

JOHN I. INGLE, D.D.S., M.S.D., Seattle

DIGEST

The obliteration of the so-called "blunderbuss" shaped root canal, characterized by the wide open apical foramen as shown in Figure 1 of this article has long been a serious problem in root canal therapy. Early in the century Callahan facetiously suggested that endodontic success could be obtained if one could "place one's thumb over the apex" to act as a limiting structure during canal obliteration. Although Callahan was speaking figuratively, a literal endodontic method has been perfected and as described in this article will assure the clinician of canal obliteration.¹

Measure to Limit the Open Apical Foramen

By its shape the pulpless "blunderbuss" canal with a periapical lesion readily lends itself to restoration by the employment of an initial surgical approach to the apex combined with subsequent canal enlargement, sterilization, and obliteration. To limit the open apical foramen, an object may be placed over the orifice against which the root canal restoration material may be firmly packed.

Procedural Steps Illustrated

Step One—Note in Figure 1 the immense chronic alveolar abscess in this pulpless upper right lateral incisor as-

sociated with the flaring periapical foramen. The proximal cuspid and central incisor are both vital.

Step Two—Visual examination of the tooth shown in the preoperative radiograph presents no evidence that the tooth is non-vital or that a huge area of chronic inflammation exists at the root end.

Step Three—In Figure 3 is shown the first operative step in successful treatment in this case: (1) A semilunar incision is made with a No. 15 Bard-Parker scalpel. (2) The incision is made in the attached gingiva and extends the length of the two approximating teeth. (3) The flap is retracted with a No. 7 S. S. White wax spatula and is retained with a Molt retractor No. 5. (4) Careful probing reveals that the labial cortical plate of bone is extremely friable and can be easily removed with a double ended surgical curette.

Step Four—All the offending chronic inflammatory tissue is curetted from the periapical lesion, taking care not to involve the vital cuspid. Bleeding is arrested by packing the area with cellulose sponges saturated with racemic epineprine (1:525) (Raphon®). The flap is replaced and the root canal enlargement is begun.

Step Five—Rubber dam is placed over the tooth being treated and a typical endodontic cavity is prepared in the lingual surface. Canal enlargement is accomplished with a No. 6, Style D root canal file frequently dipped in concentrated sulphuric acid. The acid speeds canal enlargement and concurrently sterilizes the necrotic

dentin. The acid and filing procedures are followed by continuous irrigation with a solution of sodium bicarbonate until the chemical foaming ceases. The canal is then thoroughly dried with paper points and is ready for filling.

Step Six—The necessity for a limiting object at the apex of the "blunderbuss" canal is shown in Figure 6. Observe that a coarse gutta-percha cone, pushed up the canal as far as possible, is binding at the orifice of the pulp chamber and has only half filled the periapical foramen (see arrow).

Step Seven—After the gauze and epinephrine have been removed from the periapical region and an egg-shaped burnisher is firmly placed over the apex, canal obliteration proceeds. As shown in Figure 7, the rubber dam has been removed for a better view.



1. Preoperative radiograph showing a pulpless upper lateral incisor devitalized in an automobile accident some years previously.

¹ Maxmen, Harold: Personal Communication, September 1952.



2. Close-up view of the offending tooth shown in Figure 1. Visual examination of the tooth presents no evidence that the tooth is nonvital or that a huge area of chronic inflammation exists at the root end.

3. The first step in treatment is shown. A semilunar incision is made in the attached gingiva, with a No. 15 Bard-Parker scalpel, and extended the length of the two approximating teeth. The flap is retracted with a No. 7 S. S. White wax spatula and is retained with a Molt retractor No. 5.

4. The pathologic window which had developed from destruction of the maxilla is shown.

5. A rubber dam is placed over the tooth and a typical endodontic cavity is prepared in the lingual surface.

6. The necessity is demonstrated for a limiting object at the apex of the "blunderbuss" canal. Note that a coarse gutta-percha cone, pushed up the canal as far as possible, is binding in the pulp chamber and has only half filled the periapical foramen (see arrow).

7. The gauze and epinephrine have been removed from the periapical region and an egg-shaped burnisher is firmly placed over the apex.

Usually, however, the dam is merely retracted.

Step Eight—The root canal is liberally coated with Kerr's Root Canal

Sealer cement and a blunted "coarse" gutta-percha cone, coated with the Sealer, is placed as the initial cone. This cone should be cut off in the pulp

chamber with a hot spoon excavator and spread aside with a No. 3 Star-dent spreader. The space made by the spreader is filled with a "fine" gutta-

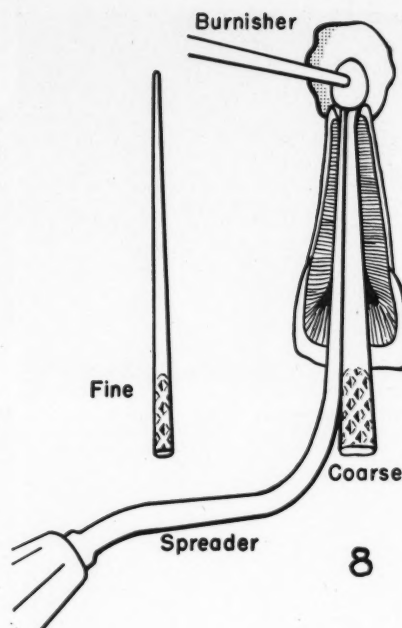
percha cone. This process is continued until no more cones can be added to the canal. The egg-shaped burnisher may be heated and used to smooth off the gutta-percha at the periapical foramen. The periapical region is thoroughly flushed with water and the flap is returned to place. All of the gutta-percha and root canal cement must be removed from the crown of the tooth so that the silver in the cement will not metallically stain the crown.

Step Nine—The semilunar incision is closed with three interrupted sutures, using a Hu-Friedy No. 1 half curved needle mounted with 000 silk thread (Fig. 9). Unless the tooth needs to be bleached, a final restoration may be placed at this time. Two or three days later these sutures may be removed.

Postoperative Measures—The patient should be admonished when he leaves the office after removal of the sutures (1) not to eat any incisive foods, (2) not to brush the teeth in this area, (3) not to lift the lip to inspect the incision. An ice bag may be prepared at home by using a plastic refrigerator bag containing two crushed ice cubes. This ice pack should be placed on the face one-half hour on and one-half hour off in three or four sessions the day of operation. It has not been found necessary to



10. This radiograph illustrates a well-obliterated "blunderbuss" canal in an upper right lateral incisor.



8. The root canal is liberally coated with Kerr's "Root Canal Sealer" cement and a blunted, "coarse" gutta-percha cone, coated with the Sealer, is placed as the initial cone.



9. The semilunar incision is closed with three interrupted sutures, using a Hu-Friedy No. 1 half curved needle mounted with 000 silk thread.

place any antibiotics or gelatin sponge in the defect.

Step Ten—A well-obliterated "blunderbuss" canal in an upper right lateral incisor is shown in Figure 10. The periapical chronic inflammatory tissue has all been removed by curettment

and will be replaced by a blood clot. The clot will organize into fibrous connective tissue and bone, and the entire defect should be normal within one year.

University of Washington
School of Dentistry

The EDITOR'S Page

CLINICIANS in both the dental and medical fields blow hot and cold on the subject of focal infection. The present attitude is, generally, a conservative one. At any time in the future, research may suggest that we return to a more aggressive position on the relationship between dental disease and systemic manifestations.

Out of Italy has come a report that is documented with electrocardiographic and histologic evidence that suggests relationships between myocardial coronary disease and focal infection.¹ Because disease of the coronary vessels is so common, so serious, and seems to be increasing, the clinician should give more than passing interest to the theory expressed by the Italian investigator:

"The mechanism by which dental or tonsillary focal infection may in some cases lead to myocardial damage is still obscure, the more so because of the paucity of available anatomic-pathologic findings. This is true, however, of the whole problem of focal infection. In fact, we do not know why a focus of infection should at a certain time and only in some cases give rise to a systemic disease; nor are we acquainted with the factors involved in causing one or another organ to be affected in any particular case; and finally, nothing is known of the process through which such a damage becomes established.

"At the present time, the prevailing opinion is that either of the following two chief mechanisms might be at work, namely:

"a) an infectious-toxic-allergic mechanism

"b) a reflex nervous mechanism

"—which, of course, does in no way rule out the possibility that mechanisms other than those just mentioned may also play a part.

"The view that allergic mechanisms play an important role in focal infection has been—for the first time, I think—expressed by us as early as 1933. This opinion has since been entertained by a great many, indeed practically all subsequent workers in this field.

"At the present time, several authors share the belief that cardiac response to streptococcal infection is of a twofold type, that is, there may be an early and a later stage of cardiac disturbances, the former being said to result from a direct action

either by streptococcal toxins or by substances set free in the tissues involved by the bacterial inflammatory process, the latter instead supposedly developing as a result of allergic reactions.

"These processes are undoubtedly very complex.

"Filtrates from cultures of streptococci are known to cause cardiac lesions. Certain streptococcal enzymes (as streptokinase, and especially a proteinase obtained from group-A streptococci) display enzymatic activities similar to those exhibited by papain. When injected intravenously, they have been found to cause local necrosis in the myocardium (other muscles being more seldom, and other organs almost never, affected) to which a local tissue reaction follows (the cell types involved being monocytes and histiocytes, or even polymorphonuclears). Such enzymes, under given circumstances, may appear also in foci of streptococcal infection in man, and it is of interest to note that specific anti-proteinases have been found to be present in the serum of some individuals.

"Bacterial allergy in cases of streptococcal focal infection is also exceedingly complex, nor does it appear to involve merely anti-streptococcal antibodies; other mechanisms are probably at work, as suggested by Masugi, and especially Cavelti on the basis of experimental results (formation of auto-antibodies against antigens set free in the affected tissues by the causative agent—whether the micro-organism itself or its toxin—the whole process being conceived as an autoimmunologic disease).

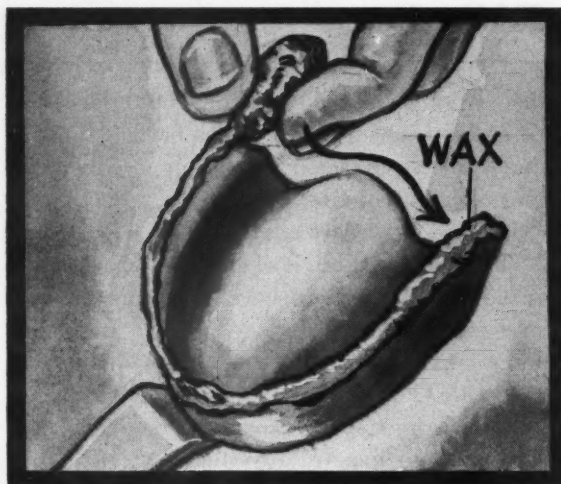
"This may well take place also in the myocardium and the coronary vessels which determine the occurrence of allergic myocardites and coronary arterites as a result of focal infection, not unlike what has been shown to occur in the case of the kidney.

"It may be conjectured that the anatomic changes affecting the coronary vessels are perhaps preceded by functional arterial spasm; an assumption supported by the well-known fact that in 'coronary insufficiency,' repeated arterial spasm may in itself play a primary determinant role."

In this work Chini expresses the opinion that the chief sources of focal infection are acute and chronic tonsillitis and chronic dental infection. A fruitful piece of research for an American investigator would be to determine if there is electrocardiographic evidence to substantiate a relationship between dental foci and myocardial disease.

¹Chini, Virgilio: A Contribution to the Knowledge of the Importance of Focal Infection in Cardiovascular Disease, *Scientia Medica Italica* 4:247-248 (October-December) 1955.

1



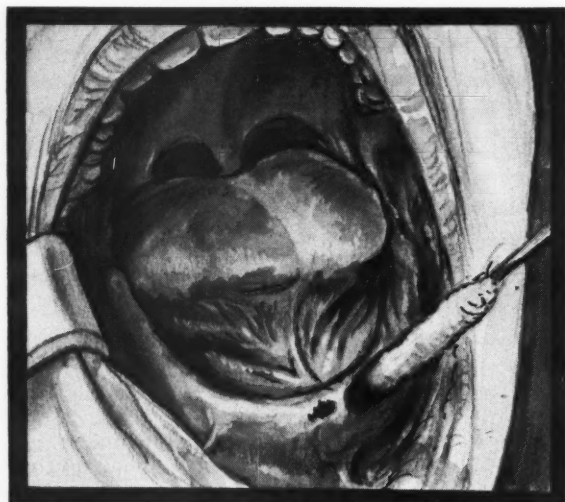
Clinical and Laboratory

To Convert an Ordinary Impression Tray

Harry Maeth, D.D.S., Mosinee, Wisconsin

1. To make an ordinary tray retentive for an alginate impression contour the tray with pliers, then attach a narrow bead of soft utility wax (about 2 millimeters) to the entire periphery.

2

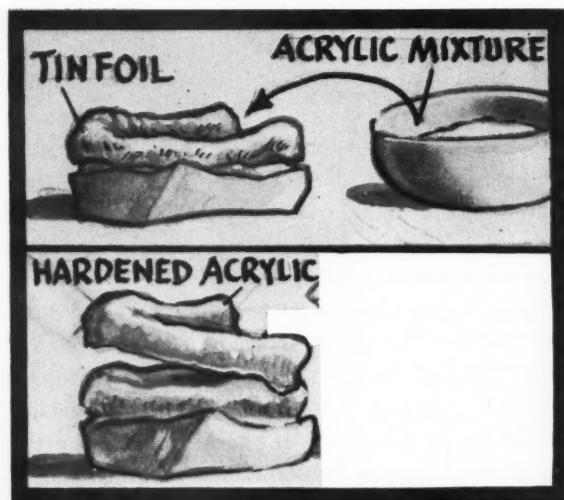


Localization of Denture Sore Spots

Edgar Davison, D.D.S., Cottage Hills, Illinois

2. Apply 2 per cent gentian violet to the sore spot with a cotton applicator. Dry the area on the tissue-bearing side of the denture. When the denture is seated the stain on the tissue at the sore spot will be transferred to the proper position on the denture.

3



An Acrylic Tray

First Lieut. A. E. Cappucci (DC), Broughton, Pennsylvania

3. Adapt tin foil to the cast. Place a few drops of monomer on the foil, then drop acrylic powder in the moistened areas. Build up to a thickness of $\frac{1}{8}$ inch. After this tray is used for the impression it may be again used as a bite-block.

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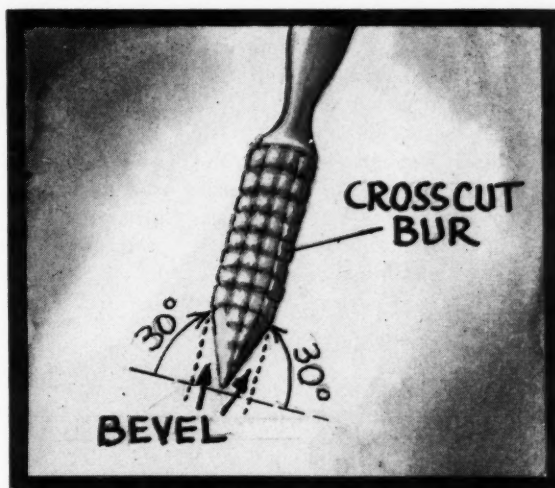
You do not have to write an article. Furnish us with rough drawings or sketches, from which we will make suitable illustrations; write a brief description of the

SUGGESTIONS . . .

Bevelled Cross-cut Bur for Amalgam Removal

Leslie Foutz, D.D.S., Ogden, Utah

4. Grind two 30° bevels on the tip of a cross-cut bur. When this altered bur is run slowly in a conventional speed handpiece it is effective in removing an old amalgam.

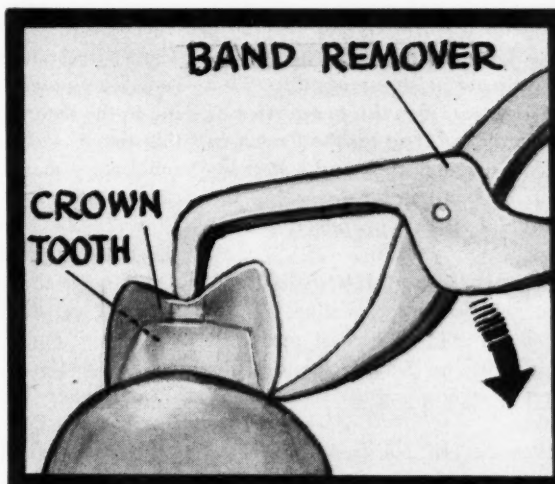


4

Removal of a Cast Crown

S. M. Kaplan, D.D.S., Mt. Vernon, New York

5. Drill a hole in the occlusal of the crown until tooth structure is visible. Place the rounded beak of an orthodontic band remover in the hole to touch the tooth structure. Place the other beak on the gingival margin of the crown. Apply force and the crown will be loosened. The hole may be closed with solder.

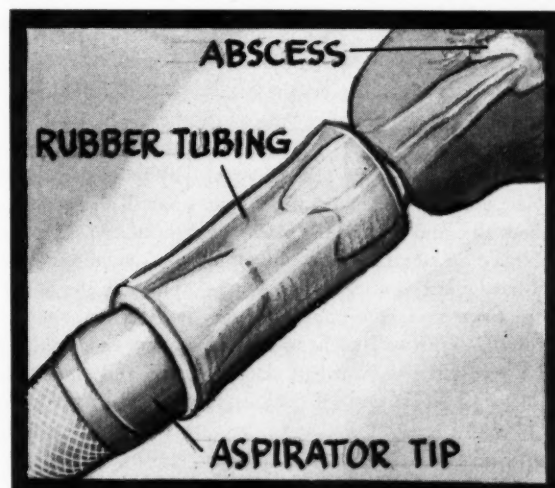


5

An Endodontic Aspirator

Jules Millman, D.D.S., Buffalo, New York

6. A two-inch length of rubber tubing is fitted snugly over the tooth that has been isolated for endodontic treatment. The tubing is connected with the aspirator tip.



6

technique involved; and jot down the advantages of the technique. This shouldn't take ten minutes of your time. Turn to page 428 for a convenient form to use.

Send your ideas to Clinical and Laboratory Suggestions Editor, DENTAL DIGEST, 708 Church Street, Evanston, Illinois.

MAT GOLD

RAPHAEL ESCOE, D.D.S., Massena, New York

DIGEST

Mat gold is a cohesive gold restoration material which has physical properties superior to gold foil and a simplicity of insertion which rivals that of the procedure used with amalgam. This article describes the properties of the material, the method used in cavity preparation, and a step-by-step procedure for inserting the material in the prepared cavity.

Description of Material

Mat gold is microcrystalline, electrodeposited gold of highest purity. It is supplied to the profession in the form of slightly fragile rods in several widths.

Density and Hardness—Mat gold restorations are harder and denser than either a gold foil or 24-carat gold inlay. This indicates a restoration which lacks the voids and dead space intrinsic in even the finest foil or casting. According to one manufacturer, a properly condensed restoration of this material meets the hardness specifications usually called for in an MOD inlay.¹

Indications for Use—This material may be used in any cavity which can be kept dry and to which proper access may be obtained for plugging. It is particularly indicated in cavities where there is a continuous circumferential lateral wall such as Class I and V cavities. It is excellent also for restoring Class III and IV cavities.

Procedure for Preparations

The preparations are cut as if to retain amalgam with particular attention to the cavosurface bevel. There may be no undermined enamel rods. These must be bevelled according to the natural cleavage planes of this tissue. If this is not done, unsatisfactory margins will result from enamel cleavage during placement.

Precise Angles Not Required—Precise line and point angles are not essential as is the case with gold foil. Squaring up the cavity with an inverted cone bur is sufficient for starting and retaining this material.

Continuous Circumferential Wall Desirable—The operator should strive, where conditions permit, to develop a continuous circumferential lateral wall which is at right angles to the floor of the cavity and to obtain facing walls in dentine.

Restoration Procedure Used

A dry field is a *sine qua non* and is best obtained with the use of the rubber dam. Condensation is all done by hand pressure using specially prepared pluggers available for this material.²

Annealing: The material as supplied by the manufacturer usually requires no annealing. If cohesion is lost a check should be made for seepage and the material should be annealed in the same way as gold foil. Actually, mat gold usually can be

handled with dry fingers rather than with forceps during placement with no adverse effects on cohesion.

Starting the Restoration: Unlike gold foil, mat gold restorations are easy to start: (1) The floor of the cavity is covered gently with a piece of proper size. (2) This gold is then condensed toward retention areas (line and point angles) with the largest plugger which will enter the cavity and with a slight rocking motion. The material can be manipulated much as amalgam is and will start at once. It is best not to perforate the first layer.

Building the Restoration: (1) After the first layer is condensed subsequent layers are added and condensed. (2) Proper condensation is shown when the dull granular brown surface of the uncondensed material is converted to a twinkling, stippled-all-over surface. (3) The special pluggers have a slightly flexible shank. Proper condensing force is used when the slightest bowing of the plugger shank is noted. (4) If the filling is not properly condensed it will be pitted and porous. (5) When condensed over margins be certain that they are covered with gold first or a chalky margin will result from injury to unprotected enamel.

Completing the Restoration: (1) The restoration should be brought to proper contour while still plugging. (2) When proper contour is obtained the entire surface is gone over with a foot plugger with particular attention to the margins. (3) The restoration is burnished, finished and polished as is done with foil. A finished mat gold restoration is indistinguishable from a foil in appearance.

Condensation With Other Than

¹ Research Department Memorandum Report No. 1002, Williams Gold Refining Company, Inc., Buffalo, N.Y.

² Available in kit from Williams Gold Refining Company, Inc., Buffalo, N.Y.

Hand Pressure: Hand pressure alone is enough to condense small and single surface restorations. An automatic or pneumatic mallet, however, will help produce better large restorations, especially those subject to shearing forces. This is because cleavage planes are often found in large restorations done solely with hand pressure. Also malleting helps obtain a smoother

finish and better margins when used with a foot plugger to condense the last layer of gold.

Discussion

Because of its superior physical properties and ease of manipulation mat gold is the most ideal restorative material available to the profession. Its disadvantages are:

- a) Dry field needed for insertion.
- b) Gold color.
- c) Heat conductivity.
- d) Need for access in placement.

Mat gold has all the advantages of a gold foil restoration (dentistry's standard of quality) together with ease and speed of manipulation which rivals silver amalgam.

Water and Main Street

Viewpoints on Extraction

ROBERT B. WHITE, D.M.D., Florence, Alabama

Summary

1. To the majority of orthodontists extraction of teeth is accepted as an adjunct to good orthodontic therapy in a sizeable percentage of malocclusions that are presented for treatment.

2. The primary consideration in treating malocclusions is to restore the mouth to the maximum in efficiency, longevity, harmony, beauty, and stability.

3. These maximal qualities, when achieved through orthodontic therapy, then would exemplify an occlusion most normal for any individual, regardless of the ultimate number of teeth remaining in the mouth.

4. The decision to extract teeth for

the individual case is based upon the following factors:

A. The findings in careful analysis and diagnosis; particularly with evaluations of (1) growth pattern; (2) growth trend; (3) relation of the bony bases to the cranial base; (4) relation of the bases to each other; (5) relation of the axial inclination of teeth to the facial plane or cranial base; (6) relation of the anterior teeth to the facial plane in horizontal linear measurement; (7) position and relations of the individual teeth and to each other; (8) size of teeth and jaws; (9) spacing, crowding, lack of teeth, or superfluity of teeth; and (10) vertical height, overbite, and free-way space.

B. The plans for treatment of the individual case which should be taken into consideration are (1) the limitation of the particular case as determined in the analysis; (2) the choice of teeth that are to be extracted; and (3) the necessity for proper positioning and alining of the remaining teeth, and closure of all spaces if the limitations permit.

5. Thorough analysis and diagnosis, and treatment planning, can be most efficacious through the use of cephalometric radiography in conjunction with casts, photographs, and intraoral films.

From *American Journal of Orthodontics* 40:514-515 (July) 1954.

Cancer in the Mouth - Histopathology

ASHTON L. WELSH, M.D., Cincinnati

CANCER, in the anterior portion of the mouth, is of low grade; in the posterior portion of the mouth, of higher grade. On the lip, lesions are most often Grades 1 or 2; on the floor of the mouth and anterior portion of the tongue, mostly Grade 2; those on the posterior third of the tongue, Grade 2-plus to 3, and lesions in the tonsillar region are Grade 4.

Low-grade malignant tumors metastasize slowly and respond rather poorly to irradiation ther-

apy. About 65 per cent of oral carcinomas are of Grades 1 or 2, while less than 10 per cent are of Grade 4. High-grade malignant tumors grow rapidly and metastasize early, and usually, they are highly radio-sensitive.

Grading is helpful in selecting the type of treatment, but grading is not an infallible method of determining the exact degree of activity. A reliable prognosis cannot be based exclusively on the malignancy grade, but must take into

consideration the extent of the malignant process, as well as location of the tumor. Grading simply affords some indication concerning activity of the growth, probable tendency to metastasize, and sensitivity to irradiation. Grading-classification must never be permitted to interfere with extent of therapy, or its intensity.

From *Leukoplakia, Leukokeratosis and Cancer in the Mouth*, Springfield, Illinois, Charles C Thomas, 1955.



Breast Cancer in Males

Cancer of the breast in men is not common. Recognition of the disease may be delayed, therefore, because neither physician nor patient is conscious of early signs.

The disease usually appears in older men, the median age being about 64 years. In most cases, asymptomatic nodules are found beneath the nipple. Occasionally bleeding from the nipple, retraction and pain may be the initial symptoms. Even at the first examination, about 70 per cent of patients have axillary spread. Although the distribution of distant metastases is the same as in women, attachment to the pectoral fascia occurs early because of the paucity of adipose tissue in the male breast. Histologically, the tumor is indistinguishable in the two sexes.

Patients may be classified into 4 groups according to the stages of the disease. In stage A, the disease is limited to the breast with little or no axillary lymph node involvement. Neither ulceration nor fixation to the underlying pectoral fascia is found. In stage B, the local disease is more extensive, but no general spread is evident beyond the axilla. In stage C, the disease extends beyond the axilla and precludes cure by direct surgery. In stage D, the lesion is incurable and the patient is referred for terminal care.

Biopsy under general anesthesia with frozen section examination affords immediate opportunity to proceed with radical mastectomy. In the most amenable cases, about 35 per cent of patients may live for five years after this procedure, while patients with ulceration and fixation of the skin almost never survive over twelve months. With more extensive disease, however, radical mastectomy should be done even though the chances of surgical cure are slight. Such surgery will spare the patient a painful, necrotic, local tumor accumulation. Any operation short of radical mastectomy is attended by a high rate of local recurrence and

MEDICINE

and the Biologic Sciences



should be abandoned. Recurrent local lesions, even when small, usually herald death with widespread metastases before two years.

Hormonal treatment with diethylstilbestrol is useful in prolonging comfortable existence in less favorable cases. Orchiectomy, with or without estrogen therapy, may give considerable relief of symptoms from widespread metastases.

Huggins, Charles, and Taylor, Grantley W.: Carcinoma of Male Breast, Arch. Surg. 70:303-308 (March) 1953.



Hip Fractures

About 80 per cent of hip fractures occur in patients over 60 years of age. In most instances such a fracture reflects a general demineralization of the skeletal structures.

Many adults and particularly elderly persons deprive themselves of minerals because of a dislike for, or an intolerance to, milk. Some who drink milk are not able to take advantage of the minerals because of a reduced acid content of the stomach.

Osteoporosis is the result of a deficiency of, or a failure to assimilate,

minerals. The method of administering milk may be altered by adding dilute hydrochloric acid to the milk. The patient is asked to drink two to four glasses of this mixture daily. Acid administered in this manner appears to be more efficacious than when given by other methods.

In the elderly patient with hip fracture, cardiac, genitourinary, and gastrointestinal disease are apt to be present. If the possibility arising from these factors is kept in mind they can be checked early. Nursing care to prevent the formation of decubitus ulcers is essential.

Accurate reduction of hip fractures is important and may require surgery. The surgical approach has been a definite advance, in fact it has materially reduced undesirable features such as immobilization with sandbags, long periods of recumbency, decubitus ulcers, deformity, and other complications. Surgery may have to be postponed until the patient's general condition is satisfactory.

A mental problem is noted in many patients who have a false impression that nothing can be done for them. Reassurance is an early part of the management. In the first few days following injury disorientation, memory defects, emotional lability, and confusion are not uncommon. These may result from the shock of the sudden change in environment and not necessarily from surgical shock. A second cause is the presence of fat emboli arising from the fracture site. Such fat emboli may be reduced by early operation on the hip. Early ambulation improves the patient's morale, eases nursing care, improves circulation of the structures about the hip, promotes healing, and maintains function of the other joints.

Heck, C. V.: Management of Hip Fractures in the Geriatric Patient, J. Am. Geriat. Soc. 3:113-116 (February) 1955.



Psychogenic Rheumatism

In patients with psychogenic rheumatism, fatigue and slight fever are
(Continued on page 422)

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Slightly Controversial

A new concept of operative dentistry is emerging from our recent studies on caries, enamel, dentine, and the pulp. Caries can be reduced, even controlled; enamel is alive; dentine growth can be stimulated; injured pulps can be saved. A very few years ago we did not know this. A few years hence we shall know more. And all because a relatively few peered into the future and found a vision of things not yet existent.

Man's greatest handicap is mental inertia. It is characteristic of the primitive mind that it cannot change. Witness the Aborigine, who builds his hill-house the same today as in the deepest past. Only war, great catastrophe and a comparatively few individuals have forced the major changes upon history. Old concepts and old techniques achieve sanctity thru continued repetition, and the novice finds the ancient professor a competent teacher.

The overthrow of antiquated systems often brings dishonor, contempt, and heartbreak to the pioneer, while the righteous preserver of the old is revered as a saviour. Our own Wells and Morton were quacks to their contemporaries who had not the brains to recognize nor the courage to accept. Often the experts are the first to condemn—the last to recognize. *But an old concept which becomes dispossessed by new facts dies an honorable death!*

So it is with new dental materials. However, new materials are often judged more harshly, used with less understanding and skill, and are expected each to be perfect. As less than

perfection exists in all things, their superiority over the old is overlooked, their condemnation is great, and their usefulness questioned. Amalgam itself passed thru this cycle, along with every succeeding material presented to the profession.

The criterion of a new material should be—is it superior to the old. And we should know as much of the old as we do of the new. Often we find the old severely at fault. Let us present a case. Since 1942, acrylic monomer has been suspicioned to kill the pulp. Despite reputable articles to the contrary, all pulp deaths where monomer was used were blamed on the monomer. Now, in a recent article in the J.A.D.A.,* monomer is shown to be more harmless than ethyl alcohol while other older materials are shown to produce severe reactions. We might say that if by chance the plastics were in routine use, and the others now introduced, on the face of scientific evidence now available, their use would be condemned as unsafe.

Now that the color problem of the plastics is solved, there seems to be no valid reason for the profession not to avail itself of their very evident superior qualities over the old in the form of insolubility, esthetics, and safety.

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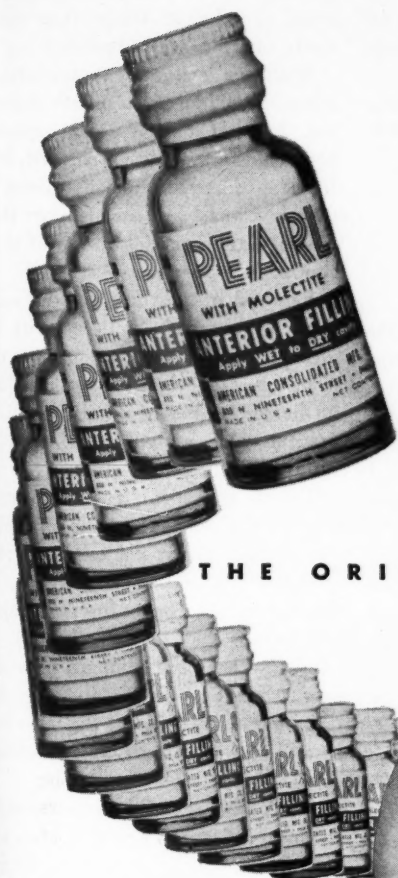
1 part, by volume. You use 1/2 cc. of powder to 8 drops of monomer. We wait until it is fairly stiff—and then pressure pack it as in the silicate technic. The result is greater density, no excess monomer; better esthetics, and no shrinkage (visible) or color change. We know this works with PEARLON and presume it does with other good materials. Give your plastics the same care as your other fillings and you will have better, safer, and more permanent plastic fillings.

The right to voice opinions is peculiarly American. The right to present new concepts, new techniques, new teachings, and new materials is also inherent. It is not the privilege of a few, or a group. It is the duty of all. Let us remember that pasteurization was born in a brewery, that in dentistry there must be no Holy Writ. With this in mind, this page will be printed. If we put in a plug here and there, excuse us. Remember that is our right, and it also can be yours. This page will be open to all who wish in their way to advance dentistry. Contributions will be welcome. We only reserve the right to accept or reject as space permits. If you have enjoyed "Slightly Controversial", let us hear from you.

Let us close with a moral. In science, the young son of a laborer may be right, while all his contemporaries are being led astray by preconceived theories.

American Consolidated
Manufacturing Co.
835 N. 19th St.
Philadelphia 30, Pa.

* J.A.D.A.—May 1956—533—Perreault, Masler, Schour.



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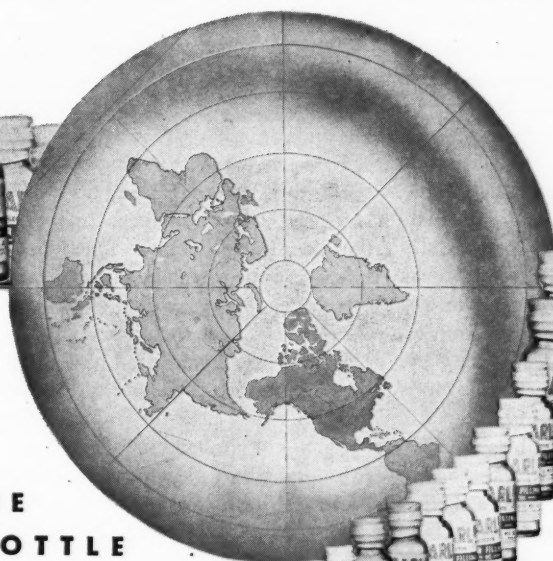
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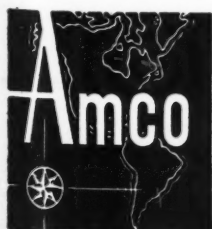
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(Continued from page 418)
prominent symptoms. The condition is found most commonly in women. Frequently associated with the condition are nagging back pain and atypical neuralgia of the face, shoulder region, and leg.

Headaches are frequent and usually ascribed to sinus infection. Physical examination and laboratory studies are negative except for the slight elevation in temperature and lymphocytosis.

Often the diagnosis is misdirected to one of two conditions: primary fibrositis or chronic brucellosis. In addition to muscular discomfort, patients with the fibrositis syndrome have neurotic symptoms such as poor sexual and marital adjustment and inability to sleep. Such patients often give exaggerated responses to the ordinary stimuli of life and are unable to relax. Because of this, fatigue and muscle tension, with subsequent aching and stiffness, occur. No true inflammatory process exists.

Chronic brucellosis is difficult to exclude in patients with pain, fatigue, and slight fever because negative laboratory tests do not eliminate the disease as a possibility. Brucellosis must be considered in farmers, livestock handlers, veterinarians, and employees in meat packing plants. The basic requirements for a precise diagnosis are exposure to the disease, objective as well as subjective evidence of illness, the presence of *Brucella* agglutinins, and isolation of *Brucella* from the tissues or body fluids. Skin tests are unreliable. Unless the possibility of brucellosis is great, the question of brucellosis should not be raised, as the idea of an obscure infection may become fixed with the patient.

No progress can be made in the treatment of psychogenic rheumatism until the anxiety of the patient is brought to the surface. The smoldering discontent of chronic resentment is best approached indirectly, avoiding crude accusations. The patient must gradually be made aware of the existence of chronic dissatisfaction and irritability in his life. As the patient is observed, the tensions from daily existence will be seen to build up to the point of causing symptoms

at which time an explanation can be made to the patient concerning the association of his disordered feelings with his bodily discomforts.

Weiss, Edward: Psychogenic Rheumatism, M. Clin. North America 39: 601-612 (March) 1955.



Tonsillectomy

Approximately 25 per cent of the surgical procedures carried out in this country consist of adenotonsillectomy. In many instances the indication for the surgery is the mere presence of tonsils. Many clinicians maintain that the attack on these structures has been overzealous.

The palatine tonsils being integral parts of Waldeyer's ring of lymphoid tissue, which includes the adenoid and lingual tonsils, are credited with qualities of defense. The exact nature of the defense mechanism is not known.

Evidence points to the fact that the tonsils are not useless organs to be sacrificed indiscriminately. It appears that they have a definite function of immunization to fulfill, especially in infancy and early childhood when the person is most in need of increased body immunity. Located, as they are, at the portals of the respiratory tract they bear the brunt of the onslaught of virulent microorganisms. In so doing they aid materially in the prevention of a spread of infection.

The hypertrophy characteristic of the tonsils of infants and small children does not of itself indicate that these structures are hopelessly damaged and should be removed forthwith. Rather, this enlargement is the normal physiologic response to infection and establishes well the fact that they are doing satisfactorily the job intended for them. Contrary to some opinion these tonsils do not interfere with breathing and swallowing. These children if left alone seem to survive and remain in a comparatively healthy and well nourished state month after month.

In some cases of hypertrophied tonsils in children there is a similar swelling of the adenoids. Usually a

blockage of the postnasal space is a mass of adenoid tissue that could easily interfere with breathing.

With or without complications, adenoids which cause mouth breathing, hearing defects, and repeated head colds may well be removed. It is felt that whatever benefit is gained by their continued presence is more than offset by the harmful effects of their continued presence.

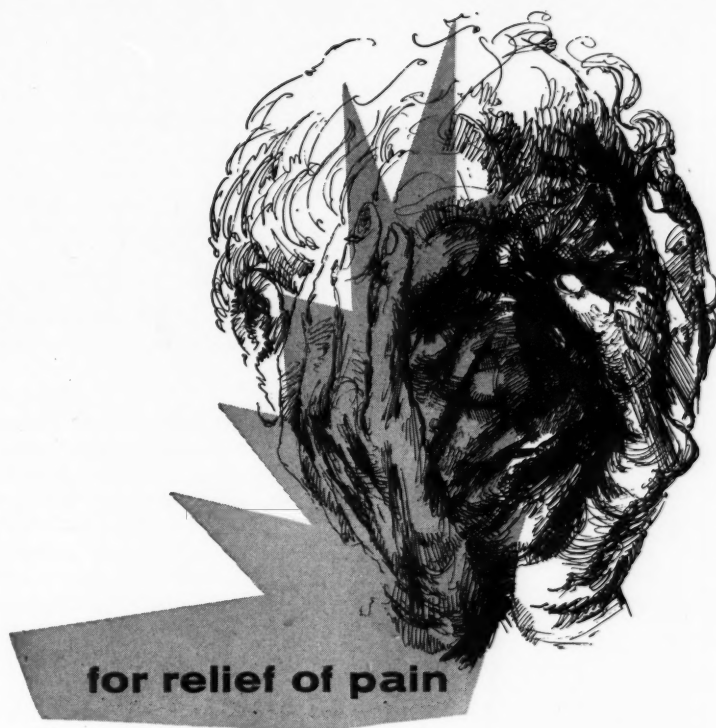
Removal of the tonsils at the same time, however, is not necessarily indicated for it is only in the most unusual cases that their removal will aid in the restoration of nasal breathing, prevent colds, and the complications resulting therefrom.

Tonsils and adenoids tend to atrophy as the need for their presence diminishes. Early evidence of this tendency is observed on occasions at the age of four years in the tonsils and before that in the adenoids. A child who has been a mouth breather may gradually lose the tendency and examination reveals that the mass has shrunk down to one-half its former size.

As a rule, the tonsils should not be removed before the age of 6 years except under special conditions which may arise to hasten the procedure along by a year or so. By the age of 6, the tonsils have served their principal purpose, that of aiding in the body immunity of young children. Then they are less hypertrophied and it is doubtful if the need of their protective influence is still of such paramount importance. Tonsillectomy is indicated at the age of 6 years or older in cases which there has been a history of repeated attacks of tonsillitis, persistent cervical adenitis, attacks of Vincent's angina or peritonsillar abscess and when some systemic condition is present which may be traced to infected tonsils.

Van Alyea, O.E.: Indications for Tonsillectomy, Current M. Digest 22:41-44 (May) 1955.

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“—Another Man’s Poison”

WE ARE publishing a provocative article this month (“Is Milk the Perfect Food?” page 398). For many years the American people have been sold on the idea that milk-drinking is good for all people and at all ages. As milk consumption has gone up the diseases of degeneration have risen likewise. This may be a coincidence. The president of the American Heart Association, however, thinks that there may be some connection. In the war against the large fat molecules in the diet that have been associated with atherosclerosis we must remember that the fat globules in cow’s milk are much larger than those present in mother’s milk.

A reducing diet that has been reported as originating in the Rockefeller Institute of Medical Research and has been ballyhooed in one of the popular illustrated magazines makes a point of synthetic mother’s milk. The formula for this concoction is:

1 1/4 cups canned evaporated milk
2 tablespoons vegetable oil
6 tablespoons dextrose sugar
1 cup water

This would appear to be a remote approximation of human milk. But don’t take my word for that. Let us see how three outstanding biochemists from Boston University School of Medicine compare cow’s milk with human milk:

“The protein concentration of cow’s milk is about three times that of human milk, being 3 to 4 per cent in the former as compared with 1 to 1.5 per cent in the latter. This is not surprising since the protein content of a particular variety of milk would be adapted to meet the growth requirements of the young of that species. A calf doubles its birth weight in fifty

days, while a baby requires one hundred eighty days to do the same. Protein must be supplied in larger quantities to the former. The amino acid distribution is, however, very similar in cow’s milk and human milk, the most notable difference being the comparative poverty of cow’s milk in cystine which, however, is not one of the amino acid food factors.

“The concentration of lactose in human milk is about 50 per cent higher than in cow’s milk, the figures being 7.0 to 7.5 per cent and 4.5 to

4.9 per cent respectively. The ash of human milk is less than one third that of cow’s milk, 0.2 per cent as compared with 0.7 per cent. The distribution of individual minerals is similar in the two varieties of milk, except that human milk, although deficient in iron, is not quite as deficient as cow’s milk. These differences between human milk and cow’s milk make it necessary to dilute cow’s milk intended for infant use with about an equal amount of water. The deficiency of sugar in cow’s milk, ac-

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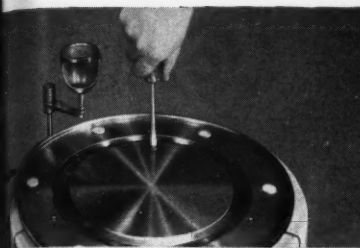
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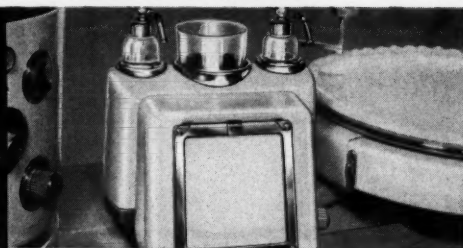
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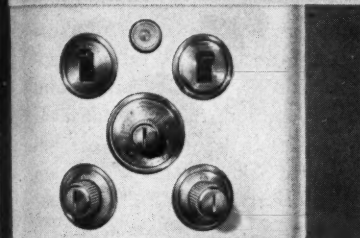
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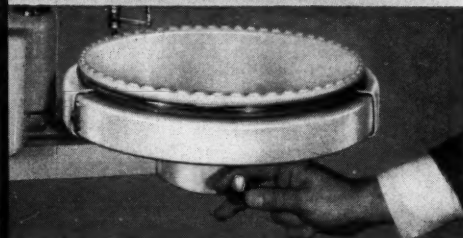
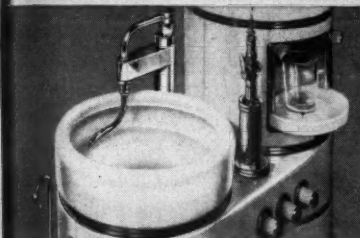


Table arm holds fast in all positions. Arm glides smoothly in desired direction and stops securely when you release the control knob.



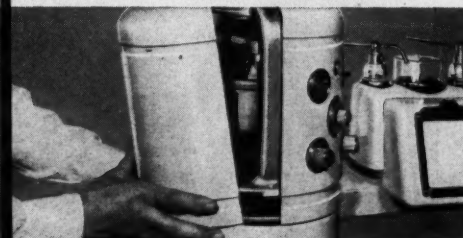
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centuated by this dilution, is made up for by the addition of lactose or products of starch hydrolysis, including dextrins, maltose, and glucose. The protein and ash content of this diluted milk is still higher than that of an equivalent volume of human milk by some 50 per cent. This means that bottle-fed babies store greater quantities of nitrogen and calcium than do breast-fed babies. The nitrogen retention, particularly, results in a muscle mass approximately 25 per cent greater in the bottle-fed babies. The

breast-fed baby seems to be at no particular disadvantage, however, because of its lesser muscle mass. On the other hand, bottle-fed babies whose formulas are diluted so as to yield only the protein concentration of human milk show poorer tissue turgor and poorer motor development.

"This is one indication that no matter how we attempt to make the proportions of the various food constituents in human and cow's milk identical, certain finer differences remain. (Italics not in original.) Thus, in cow's

milk the two most important proteins, casein and lactoglobulin, occur in approximately a 6:1 ratio, whereas in human milk the corresponding ratio is about 2:3. While the two proteins are both complete, casein forms a curd when subjected to the action of the gastric juices. The result is that cow's milk is digested more slowly than human milk. This is reflected in the fact that the feces of a bottle-fed baby are generally more abundant and of a harder consistency than are those of a breast-fed baby.

"Furthermore, cow's milk, while possessing a fat concentration (about 4 per cent) similar to that of human milk, contains a larger proportion of palmitic acid and stearic acid and a smaller proportion of oleic acid. Here, too, the difference is negligible nutritionally but again the more saturated glycerides are the slower to digest. Human milk is less than half as rich in the lower fatty acids as cow's milk and is particularly poorer in butyric acid. The fat globules of cow's milk are considerably larger than those of human milk." (From "Biochemistry and Human Metabolism," Walker, Boyd, and Asimov, Baltimore, The Williams and Wilkins Company, 1952.)

In his paper "Is Milk the Perfect Food?" Doctor Rabben shows that the growth hormone and the lactogenic hormone are closely associated secretory products of the anterior lobe of the pituitary gland. One naturally wonders what happens to human beings who continue to consume milk after their growth potential has been fulfilled.

Milk is intended as food for the mammalian *young*. After growth is complete may the excessive consumption of milk by the *adult* initiate growth in tissues where the growth of cells is undesirable? There have been hints dropped here and there that milk may be one factor in cancer formation. Nobody knows the answer at present, and the subject is worthy of our best research.

The absurdity of many diets, both those prescribed by physicians and those self-imposed, have led many people into serious trouble. The nu-

tritional needs of people are not all the same. To be trite: "One man's meat is another's poison."

For reasons that are at present unknown some people require more and others less of the essential nutrients. No one has better stated this fact than has the eminent biochemist Roger J. Williams of the University of Texas:

"The genotrophic principle is a very broad one encompassing the whole of biology. It may be stated as follows: Each individual organism that has a distinctive background has distinctive nutritional needs which must be met for optimal well-being. This principle is valid whether the variation between individuals of the same species is small or large. If the variation is small, then the principle becomes only of academic interest, since to demonstrate its validity would require hair-splitting experiments and interpretations. If the variation is large, then the genotrophic principle is of far-reaching significance, because there is no telling how many

diseases of obscure origin may ultimately be traced to malnutrition of a type which is based upon an individual's genetically induced specific high nutritional demands.

"The application of the genotrophic principle opens a tremendous field of exploration for medical and dental science. The possibilities in this area hinge to a very large degree upon the *extent of the variation* of human nutritional needs. If the range of variation is small, the importance of the genotrophic principle is negligible. If the range is large, its importance may be beyond measure.

"The fundamental concept on which to base our enthusiasm for nutrition and the possibilities of applying the genotrophic principle is simple. What a fertilized egg cell needs in the way of nutritional elements (and the amounts needed) is determined genetically. If these needs are adequately supplied, the organism thrives; if they are not adequately supplied, the organism sickens. The pattern of needs may be such as to require special attention. If adequate knowledge makes it possible to give special attention and to supply the distinctive needs, the inevitable result should be health instead of disease.

"One of the real difficulties in selling nutrition to the public and to those numerous physicians who do not 'believe' in vitamins is the fact that there are individuals who seem to pay no attention to nutritional maxims, or to vitamins, minerals, etc., and yet remain healthy to advanced old age. They may even dilute their vitamins, minerals, and amino acids continuously with substantial amounts of alcohol. These individuals are effective living denials of all that the nutritionists have to say, and the public is not slow to see the difference between 'theory' and 'practice.'

"When, however, we recognize the high variability which exists, which undoubtedly extends to the self-selection capabilities of individuals, we can readily understand these phenomenal persons, who are not so phenomenal actually, since many others approximate them in behavior. Such persons may have unusually low de-

mands for a number of crucial nutrients (coupled possibly with high demands for items that are abundant in the foods that they like) with the result that they can seemingly violate the laws of nutrition and strongly influence their fellows (consciously or unconsciously) to do likewise.

"When the wide variations in nutritional needs are considered, the picture becomes complete. Education based upon the recognition of these variations can proceed without embarrassment or evident denial, and there is hope that the importance of nutrition, for each individual, can become more fully realized." (From "Human Nutrition and Individual Variability," Borden's Review of Nutrition Research. March-April, 1956.)

All mankind shares one thing in common: the constant demand for nourishment. The quality of that nutrition depends on many factors, some that reside within the biochemical nature of the food and others within the biologic framework of the human organism. If we spent one-tenth the amount in universal nutritional research and methods for improvement of our foods that we do in the preparation for war we might uncover some factor that would reduce human tensions that would make war less likely.

—E. J. R.



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Oral Medicine

LESTER W. BURKET, D.D.S., M.D., Sc.D.,
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Localization of Disease Processes

The field of oral medicine includes those diseases affecting the oral tissues exclusive of dental caries, periodontal disease, and conditions requiring surgical intervention as their main treatment. With few exceptions, these diseases represent the oral mucosal localization of disease processes found in other parts.

Environmental Factors in Diagnosis—The difficulty experienced in the diagnosis and treatment of these diseases results from the environmental peculiarities of the oral cavity. In addition to the warmth and moisture common to other body cavities, the oral tissues are in close physical relation to the external environment and its associated hazards. Thus they are subjected to traumatic, chemical, and thermal irritation during periods of physiologic function or acquired habits. In addition, the oral tissues are constantly exposed to a high bacterial population of many known pathogens. Because of these unusual environmental factors, the initial and more typical appearance of any oral lesion is soon modified by maceration, trauma, and secondary infection by the oral flora.

Condition of Oral Tissue Diagnostic Aid—The constant presence of these varied and unique environmental conditions makes the oral tissues sensitive indicators of variations in the general state of body health. Nonspecific changes may be found in the oral tissues before the more typical and diagnostically significant clinical signs appear in other parts of the body. Thus, a careful examination and intelligent evaluation of the state of health of the oral tissues may be of great value to the physician in recognizing the early stages of nutritional deficiencies, endocrine and metabolic disturbances, and diseases of the blood.

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tervals and who is thoroughly familiar with the oral tissues can play a most important role as a medical case-finder, but his potentialities in this role have not been fully appreciated. The dentist's intelligent participation in preventive medicine and in the positive approach to health will not only benefit the patient but assist those who have the responsibility to treat him.

Adapted from *Merck Report* 63:16 (April) 1954.

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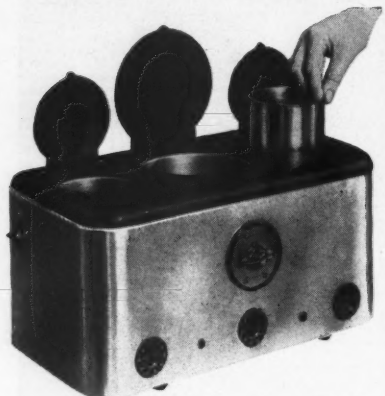
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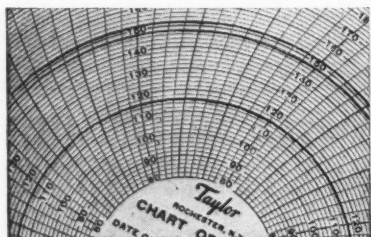


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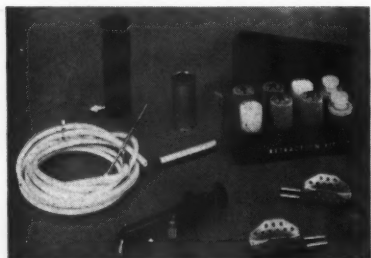
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